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HACKING THE SILOS: ELIMINATING INFORMATION BARRIERS BETWEEN PUBLIC HEALTH AND LAW ENFORCEMENT

by

Cody L. Minks

March 2018

Thesis Advisor: Anke Richter
Second Reader: Lauren Fernandez

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This thesis aims to define the current level of information sharing and integration between public health and law enforcement by examining fusion centers and Joint Terrorism Task Forces (JTTFs). The data collection instruments for this thesis were three separate but closely related surveys sent to fusion centers, JTTFs, and public health departments. Only one of the 23 surveyed fusion centers truly includes public health considerations in its functions, a decrease from research conducted by Naval Postgraduate School master's student James Morrissey in 2007. None of the JTTF respondents have a public health representative on their task force and, although the public health sector is interested in integration, its representatives rarely contact JTTFs and fusion centers to initiate collaboration. The data from the literature and surveys indicate that fusion centers and JTTFs want to collaborate with the public health sector, as well, but face integration obstacles such as funding, manpower, and resources. This thesis proposes recommendations to improve collaboration between law enforcement and public health agencies across the United States, including removing certain requirements to serve, expanding the role of regional public health planners, and re-expanding federal grant programs to reflect originally established funding opportunities.

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HACKING THE SILOS: ELIMINATING INFORMATION BARRIERS BETWEEN PUBLIC HEALTH AND LAW ENFORCEMENT

Cody L. Minks
Regional Public Health Emergency Planner,
Saint Charles County Department of Public Health
B.S., Southeast Missouri State University, 2011
M.P.H., University of Missouri, 2014

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requirements for the degree of

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**NAVAL POSTGRADUATE SCHOOL
March 2018**

Approved by: Anke Richter, Ph.D.
Thesis Advisor

Lauren Fernandez, D.Sc.
Second Reader

Erik Dahl, Ph.D.
Associate Chair for Instruction
Department of National Security Affairs

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ABSTRACT

This thesis aims to define the current level of information sharing and integration between public health and law enforcement by examining fusion centers and Joint Terrorism Task Forces (JTTFs). The data collection instruments for this thesis were three separate but closely related surveys sent to fusion centers, JTTFs, and public health departments. Only one of the 23 surveyed fusion centers truly includes public health considerations in its functions, a decrease from research conducted by Naval Postgraduate School master's student James Morrissey in 2007. None of the JTTF respondents have a public health representative on their task force and, although the public health sector is interested in integration, its representatives rarely contact JTTFs and fusion centers to initiate collaboration. The data from the literature and surveys indicate that fusion centers and JTTFs want to collaborate with the public health sector, as well, but face integration obstacles such as funding, manpower, and resources. This thesis proposes recommendations to improve collaboration between law enforcement and public health agencies across the United States, including removing certain requirements to serve, expanding the role of regional public health planners, and re-expanding federal grant programs to reflect originally established funding opportunities.

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LIST OF ACRONYMS AND ABBREVIATIONS

ARS	acute radiation syndrome
BSL	biosafety level
CBRNE	chemical, biological, radiological, nuclear, and explosives
CDC	Centers for Disease Control and Prevention
DHS	Department of Homeland Security
DOJ	Department of Justice
EMS	emergency medical services
EOC	emergency operations center
FBI	Federal Bureau of Investigation
FC	fusion center
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FLO	fusion center liaison officer
FOUO	for official use only
HIPAA	Health Insurance Portability and Accounting Act
HSIE	Health Security Intelligence Enterprise
ICDTE	Intelligence Community Desktop Environment
ILO	intelligence liaison officer
ISIS	Islamic State of Iraq and al-Sham
JTTF	Joint Terrorism Task Force
LPHA	local public health agency
PAHPA	Pandemic and All-Hazards Preparedness Act
PHEP	Public Health Emergency Preparedness Program
TLO	terrorism liaison officer
SAR	suspicious activity reporting
SHSGP	State Homeland Security Grant Program
UASI	Urban Area Security Initiative
WMD	weapon of mass destruction

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EXECUTIVE SUMMARY

Law enforcement typically maintains public order and exists to "serve and protect"; this mission must be understood within the context of society, politics, governance, and the criminal justice system.[1] Despite incidents that demonstrate the importance of collaboration, law enforcement agencies rarely work closely with public health agencies on public health issues, and the same can be said regarding public health practitioners working with law enforcement. These two separate disciplines evolved based on differing motivations, lending them differing priorities and cultures. This has created a social distance between the two disciplines, which engage in occasional ad hoc collaboration with "mutual hostility."[2] However, these two disciplines have a common mission in the homeland security enterprise: to protect individuals from "ill-health, injury and unnatural or untimely death."[3]

During a large-scale public health emergency, law enforcement and public health practitioners will undoubtedly exhaust their resources rapidly. While the demands of the job will continually be there during the response, officers and public health practitioners must make contingency plans for when their staff members become ill, refuse to respond, or succumb to illness and pass away. The ability to properly respond to these types of emergencies relies heavily on planning and collaboration between law enforcement and public health agencies; by forming professional relationships, the two disciplines can bolster their response capabilities.

Terrorist groups continue to strengthen their forces, increasing the need for U.S. preparedness. A weapon of mass destruction (WMD) or homegrown violent extremist attack involves response efforts from both public health and law enforcement responders. While it is clear that investigation of terrorism is within the domain of law enforcement,

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[1] Auke van Dijk, and Nick Crofts, "Law Enforcement and Public Health as an Emerging Field," *Policing and Society* 27, no. 3 (April 3, 2017): 261, https://doi.org/10.1080/10439463.2016.1219735.

[2] van Dijk and Crofts, 261.

[3] van Dijk and Crofts, 261.

public health officials can provide important information about the nature of biological and radiological agents during the investigation and response.

Fusion centers were created to house representatives from the array of homeland security enterprise agencies, with the sole purpose of gathering, analyzing, and then sharing potential threat intelligence with law enforcement agencies.[4] Another method of formal intelligence gathering is the 104 Joint Terrorism Task Forces (JTTFs) that focus primarily on terrorism and "other criminal matters related to various aspects of the counterterrorism mission."[5] Fusion centers and JTTFs work together "to safeguard our homeland and prevent criminal and terrorist activities."[6]

Historically, public health practitioners have had difficulty receiving key information for response efforts, often because of information silos.[7] In 2007, James Morrissey surveyed 22 fusion centers, 12 of which had established collaborations with the public health sector.[8] However, the public health positions offered in these 12 fusion centers were mostly "minimal," with only one full-time position.[9] Today, roughly 10 years after Morrissey's research, it is unknown how often, and to what extent, public health practitioners are involved in fusion centers nationally. A formal system is needed to ensure that the proper public health practitioners are receiving relevant threat information. The lack of a current system does not mean that those in public health do not seek information. Public health agents do seek information; but without a system in place, this information usually comes from informal intelligence sources (news media or social

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[4] Brienne Lenart et al., "Integrating Public Health and Medical Intelligence Gathering into Homeland Security Fusion Centres," *Journal of Business Continuity & Emergency Planning* 6, no. 2 (Winter 2012–Autumn 2013): 175.

[5] "Fusion Centers and Joint Terrorism Take Forces," Department of Homeland Security, July 29, 2016, https://www.dhs.gov/fusion-centers-and-joint-terrorism-task-forces.

[6] Department of Homeland Security, "Fusion Centers and Joint Terrorism Task Forces."

[7] Joe Eyerman and Kevin Strom, "A Cross-national Comparison of Interagency Coordination between Law Enforcement and Public Health," RTI Project Number 08914 (research report, NC: RTI International, 2005), vii, https://www.ncjrs.gov/pdffiles1/nij/grants/212868.pdf.

[8] James F. Morrissey, "Strategies for the Integration of Medical and Health Representation within Law Enforcement Intelligence Fusion Centers" (master's thesis, Naval Postgraduate School, 2007), 27, https://www.hsdl.org/?abstract&did=471887.

[9] Morrissey, 27.

media) rather than formal sources (fusion centers, local law enforcement, and federal law enforcement).

Notably, the benefits of improving collaboration between the public health sector and fusion centers and JTTFs are not one-sided. Public health practitioners can act as subject-matter experts in fusion centers, especially for WMD threats such as chemical, biological, and radiological events.[10] The research conducted for this thesis aimed to determine the current level of integration between public health and law enforcement by measuring the integration of public health considerations in fusion centers and JTTFs. Three distinct, but closely related, surveys were sent to fusion centers, JTTFs, and public health departments. The fusion center survey was sent to all 77 fusion centers across the country with a response rate of 29.87 percent. The public health survey was sent to 24 public health departments, with a response rate of 66.67 percent (16 responses). The JTTF survey was sent to 15 of the country's 104 JTTFs, with a response rate of 20 percent (three responses).

Of the 23 responding fusion centers, four indicated they have public health representatives. However, based on the responses, it is questionable if three of these centers have a true public health component. Of the 16 responding public health departments, nine represented local departments and seven represented state departments; none of the local departments had representatives on the JTTF or in the fusion center, and seven state health departments indicated that they have a representative in the fusion center. Of those seven, however, only one representative holds a security clearance, so it is unclear the extent of the relationship between the remaining six state health departments and their respective fusion centers. Two state health departments indicated that they have representatives on their local JTTF, but responses later in the survey made their involvement questionable. While all three responding JTTFs value public health, none have a public health subject-matter expert serving on the task force.

[10] Adam Bulava, "Fusion Centers & Public Health Agencies: Unlikely or Natural Partners?" Domestic Preparedness, August 26, 2009, https://www.domesticpreparedness.com/preparedness/fusion-centers-public-health-agencies-unlikely-or-natural-partners/.

The survey data indicate that fusion centers and JTTFs want to collaborate with the public health sector. However, there is less collaboration occurring between public health agencies and the other branches of the homeland security enterprise when compared to Morrissey's 2007 research.[11] The surveys indicate common issues inhibiting collaboration, including a lack of personnel, funding, and reciprocal awareness between the disciplines. Several of the public health respondents had difficulty differentiating fusion centers from JTTFs, while those in law enforcement continually equated public health with medicine. The surveys also revealed that it is difficult to integrate public health practitioners in JTTFs and some fusion centers because they are not sworn law enforcement officers.

Additionally, Department of Justice (DOJ) guidance has recommended including various disciplines in the homeland security enterprise. Although the DOJ published guidance to facilitate fusion center and public health integration in 2008, the surveys revealed that the majority of fusion centers have not implemented the DOJ capabilities.

This thesis proposes several policy recommendations to enable integration: removing the sworn law enforcement officer requirement for fusion center and JTTF staff, utilizing pre-existing positions to act as regional liaisons, establishing full-time public health positions in fusion centers, and reinstating the original grant amounts of the Public Health Emergency Preparedness grant program and the Homeland Security Grant Program. Notably, the recommendations to utilize pre-existing positions as regional liaisons and establish full-time public health positions are dependent on increased grant funding.

The public health issues over the past 15 years serve as a reminder to the homeland security enterprise. Ebola, Zika, Chikungunya, H1N1, seasonal influenza, the anthrax letters, and the emerging discipline of gene editing are all public health factors that affect homeland security. Improving information sharing through collaborative efforts is the first step in improving situational awareness and decision-making processes for public health leadership. The health implications of WMDs are catastrophic; the faster public health is aware of an issue, the quicker practitioners can respond to mitigate its impact.

[11] Morrissey, "Integration of Medical and Health Representation."

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I. INTRODUCTION AND BACKGROUND

In his book, *Delivering on Digital: The Innovators and Technologies That Are Transforming Government*, Dave Eggers introduces the importance of sharing information horizontally. But this cannot be done without removing silos that impede communication. Eggers thus coined the phrase "hacking the silos"; hacking, in this sense, means using "ingenuity and prowess to fix a problem."[1] This thesis aims to describe the current level of integration between public health and law enforcement entities and to provide solutions for information silos that exist between these two disciplines.

Public health and law enforcement are two longstanding fields; because they operate in separate domains, however, they have infrequent and hesitant interaction with each other.[2] Law enforcement typically maintains public order and exists to "serve and protect" within the context of society, politics, governance, and the criminal justice system.[3] Despite past incidents that demonstrate the importance of collaboration, such as the 2001–2002 anthrax scare, law enforcement agencies rarely work closely with the public health sector on public health issues, and the same can be said regarding public health practitioners who deal with law enforcement issues.

These two separate disciplines evolved with differing motivations, leading them to operate with differing priorities and cultures. This has created a social distance between them, cause them to engage in occasional ad hoc collaboration with "mutual hostility."[4] However, these disciplines have a common mission in the homeland security enterprise: to protect individuals from "ill-health, injury and unnatural or untimely death."[5] Law

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[1] William D. Eggers, *Delivering on Digital: The Innovators and Technologies That Are Transforming Government*, Kindle edition (New York: RosettaBooks, 2016), loc 303.

[2] Auke van Dijk, and Nick Crofts, "Law Enforcement and Public Health as an Emerging Field," *Policing and Society* 27, no. 3 (April 3, 2017): 261, https://doi.org/10.1080/10439463.2016.1219735.

[3] van Dijk and Nick Crofts, 261.

[4] van Dijk and Nick Crofts, 261.

[5] van Dijk and Nick Crofts, 261.

enforcement officials often deal with matters of health and well-being, but health and *public* health are not entirely synonymous.

Health, as defined by the World Health Organization, is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."[6] *Public* health, on the other hand, is "the art and science of preventing disease, prolonging life and promoting health through the organized efforts of society."[7] The role that public health plays in emergencies varies depending on the type of emergency. During most events, such as natural disasters, public health efforts serve a supportive role; in instances of public health emergencies, however, they serve the lead role. Public health emergencies are mainly events of bioterrorism or outbreaks due to a causative agent that is naturally occurring or manmade. A few modern examples of public health emergencies are the2001–2002 anthrax letters, the 2009 H1N1 pandemic, and the isolated 2017 hepatitis A epidemic in San Diego, California.

U.S. public health laws date back to the founding fathers and the Constitution. During the colonial period, epidemics had a significant impact on the colonies, which ultimately granted the government "broad powers" to abate public health threats.[8] According to Richards, the public health sector has "police powers, as in 'to police,' meaning to clean up."[9] Public health and law enforcement agencies have a common mission to protect the public, yet they rarely work together.

Depending on the event, law enforcement may have a vital role in public health emergency response. This first depends on whether the emergency is the result of a manmade attack or, in the case of an outbreak, if the outbreak is naturally occurring. Law enforcement is usually the primary discipline in charge of investigating manmade threats,

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[6] Norman Sartorius, "The Meanings of Health and Its Promotion," *Croatian Medical Journal* 47, no. 4 (August 2006): 662.

[7] "Public Health Services," World Health Organization, last modified October 13, 2017, www.euro.who.int/en/health-topics/Health-systems/public-health-services.

[8] Edward P. Richards, "Collaboration between Public Health and Law Enforcement: The Constitutional Challenge," *Emerging Infectious Diseases* 8, no. 10 (October 2002): 1157, http://doi.org/10.3201/eid0810.020465.

[9] Richards, 1157.

though officers may rely on public health practitioners such as epidemiologists and biostatisticians. Even for naturally occurring public health emergencies, however, law enforcement may still play an important role in crowd control and security at sites where medical countermeasures are stored and disseminated, and/or to enforce quarantine orders. During such responses, law enforcement agents will need to coordinate their response efforts with public health officials, many of whom they have never worked with, and perhaps never even met.

During a large-scale public health emergency, law enforcement and public health agencies exhaust their resources rapidly. Because of the continuous nature of response demands, officers and public health practitioners must make contingency plans for when their staff members become ill, refuse to respond, or even succumb to illness and pass away. The ability to properly respond to these types of emergencies relies heavily on planning and collaboration between law enforcement and public health officials; in order to initiate collaboration, the two disciplines must first form professional relationships.

Collaboration between public health and law enforcement entities varies across the country, which can be problematic during public health emergencies. Fusion centers are law enforcement functions through which information is received, analyzed, vetted, and shared among disciplines within the homeland security enterprise. Joint Terrorism Task Forces (JTTFs) are another law enforcement function that focuses primarily on counterterrorism. Establishing partnerships between public health and law enforcement entities—facilitated by fusion centers and JTTFs—may improve the nation's readiness for a public health emergency.

A. PUBLIC HEALTH THREATS

Public health threats affect both public health practitioners and law enforcement personnel. Emergencies involving disease outbreaks or pandemics, biological attacks, and radiological exposure, whether they occur naturally or are manmade, require a public health response that addresses safety and security issues. Biological and radiological events may particularly adversely impact law enforcement, especially if responders fall ill. If law

enforcement and public health entities maintain established relationships that freely share information, both disciplines will be better prepared for public health emergencies.

1. Pandemics

In the context of this thesis, epidemics and pandemics are the result of a naturally occurring contagion.[10] Such events have made significant impacts throughout human history. The plague, also known as the "black death," ravaged Europe in the mid-14th century, causing the death of an estimated 75–200 million people (up to nearly 40 percent of the world population).[11] More recently, plague epidemics surfaced in China in the nineteenth century, and in Vietnam in the 1960s. Also in modern history, the 1918 Spanish influenza pandemic spread across the globe, infecting 500 million people—one-third of the world's population—and killing 50 million around the world.[12] Many believe that soldiers in Spain during World War I served as a catalyst for the virus's worldwide spread.

Over the past decade, the world has witnessed multiple epidemic and pandemic events that remind public health officials, governmental leaders, and the public about mankind's vulnerabilities to viral and bacterial threats. The Zika epidemic occurred in 2015 and 2016 in numerous countries, causing disease and birth defects in newborns. In 2014, the Ebola virus caused widespread terror and killed more than 11,000 people. In 2009, the H1N1 pandemic killed 200,000. The United States is familiar with widespread disease, having experienced the impacts of smallpox, cholera, scarlet fever, typhoid, diphtheria, polio, measles, pertussis, HIV, and pandemic influenza.

The world is connected; we can travel the globe with relative ease, creating an opportunity for the spread of disease as well. Global travel and climate change are creating

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[10] An epidemic is a widespread occurrence of disease within a community, state, or country in a given amount of time; a pandemic is much wider. A pandemic expands the occurrence of the disease to multiple countries around the world.

[11] Stephanie Pappas, "Black Death Survivors and Their Descendants Went on to Live Longer," *Scientific American*, May 8, 2014, https://www.scientificamerican.com/article/black-death-survivors-and-their-descendants-went-on-to-live-longer/.

[12] Jeffrey Taubenberger and David Morens, "1918 Influenza: The Mother of All Pandemics," *Emerging Infectious Disease Journal* 12, no. 1 (January 2006), https://wwwnc.cdc.gov/eid/article/12/1/05-0979_article.

more opportunities for disease to spread—a fact that is only compounded by the growing threat of antibiotic resistance. Diseases that once caused pandemics are reemerging, as well, as the anti-vaccine movement grows. Pandemics occur naturally; they are not instances of terrorism. However, they do represent a threat to homeland security.

2. Public Health and the Terrorist Threat

The United States has a storied past with events of terrorism and remains a target of radical terrorist groups. Groups such as Al Qaeda, the Taliban, the Islamic State of Iraq and al-Sham (ISIS), and domestic terrorist organizations continue to strengthen their indoctrination efforts and therefore their forces, thus increasing the need for U.S. preparedness. The development and use of weapons of mass destruction (WMDs) are also a concern for the public health and medical communities. The terroristic threat to the United States is multidimensional; it comes from various geographic origins across the globe. Homegrown violent extremists, many of whom have been radicalized by ISIS propaganda, pose a significant threat. A WMD or homegrown violent extremist attack involves response efforts from both public health and law enforcement agents.

While it is clear that investigation of terrorism is within the domain of law enforcement, public health officials can provide important information about the nature of biological and radiological agents to aid investigation and response efforts. The public health sector has detailed information about the health threats of, and available treatments for, such events. To further define the issues that accompany WMD attacks, it is important to understand biological warfare and radiological warfare, and to review the prior threats and possible impacts of both.

a. Biological Warfare

Some believe that the first instance of biological warfare occurred more than 2,000 years ago, when the Hittites used tularemia against their foe; the first recorded instance of biological warfare, however, occurred in the 14th century BC, when an epidemic of *Francisella tularensis*, commonly referred to as tularemia, made its way through Iraq and

Syria during a time of war.[13] Since then, armies and governments have used biological agents to limit their opponents on the battlefield. In the Neshite–Arzawan conflict, around 1320 BC, diseased animals were to infect opponents.[14] In the fourth century BC, Scythian archers submersed arrows in decaying remains and, allegedly, snake venom.[15] Arrows were similarly used to transmit plague in 1437.[16] Other pre-modern instances of biological warfare include Barbossa poisoning water wells with human bodies in Tortona, Italy (1155 AD), Mongols hurling plague-infected dead bodies over the walls of Caffa (1346), British troops purposely infecting Native Americans with smallpox via blankets (1763), and Confederate soldiers selling clothing laden with smallpox and yellow fever to Union soldiers during the United States Civil War (1863).[17]

The discoveries of Robert Koch and Louis Pasteur ushered in the modern era of biological warfare. Pasteur is best known for his discoveries in germ theory in the 1860s, and Koch for his discoveries involving the causative agents of *Bacillus anthracis* and *Mycobacterium tuberculosis* in the 1870s. Though their discoveries were a great leap for the study of biology and the future of medicine, their successes also provided insight into how to isolate pathogens and control how pathogenic agents are distributed.[18] In World War I, Germany and France used these new discoveries to establish covert biological warfare programs.[19] The Soviet Union also developed a biological weapons program that caused a tragic 1979 outbreak in Sverdlovsk, resulting in the loss of Russian citizens and cattle.[20] With advances in science and medicine, the biological threat only grows stronger.

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[13] Siro Igino Trevisanato, "The 'Hittite Plague', an Epidemic of Tularemia and the First Record of Biological Warfare," *Medical Hypotheses* 69, no. 6 (January 1, 2007): 1371, http://doi.org/10.1016/j.mehy.2007.03.012. 1371.

[14] While the Neshite–Arzawan conflict may not be the defined start of biological warfare, it is the first recorded instance. Trevisanato, 1374.

[15] V. Barras, and G. Greub, "History of Biological Warfare and Bioterrorism," *Clinical Microbiology and Infection* 20, no. 6 (June 2014): 498, http://doi:10.1111/1469-0691.12706.

[16] Barras and Greub, 498.

[17] Barras and Greub, 498.

[18] Barras and Greub, 499.

[19] Barras and Greub, 499.

[20] Matthew Meselson et al., "The Sverdlovsk Anthrax Outbreak of 1979," *Science* 266, no. 5188 (1994): 1202–3, http://doi.org/10.2307/2885382.

The anthrax attacks in 2001 demonstrate the possibility of successfully implementing a bioterrorism attack on American soil. The attack resulted in five deaths, severe illness for 17, mental anguish for thousands, and more than $6 billion in response and recovery funds.[21] In 2010, a report from the Commission on the Prevention of WMD Proliferation and Terrorism claimed that "further attacks are possible in the relatively near term, stating specifically that unless the world community acts decisively and with great urgency, it is more likely than not that a WMD will be used in a terrorist attack somewhere in the world by the end of 2013."[22] The commission also concluded that future attacks are more likely to be biological in nature.[23]

For centuries, man has taken advantage of the low cost of biological weapons, as well as the minimal barriers to their procurement. Although international laws have attempted to regulate biological weapons, legislation has done little to prevent their development.[24] The threat of bioweapon proliferation is compounded by the probability that extremists may obtain weaponry from national weapons programs, or perhaps establish their own bioweapons program.[25]

Today, anyone educated in genomes can easily recreate a virus that occurs in nature, and can alter its fragments so that, once exposed to humans, the virus can easily spread by contagion. Oligonucleotides can be ordered through the mail and used to build virus

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21 "Amerithrax or Anthrax Investigation," Federal Bureau of Investigation, accessed October 28, 2016, https://www.fbi.gov/history/famous-cases/amerithrax-or-anthrax-investigation; Molly J. Hall et al., "The Psychological Impacts of Bioterrorism," *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 1, no. 2 (2003): 139–44, http://doi.org/10.1089/153871303766275817.

22 Gillian SteelFisher et al., "Public Response to an Anthrax Attack: Reactions to Mass Prophylaxis in a Scenario Involving Inhalation Anthrax from an Unidentified Source," *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 9, no. 3 (September 2011): 240, http://doi.org/10.1089/bsp.2011.0005.

23 SteelFisher et al., 240.

24 James B. Petro, Theodore R. Plasse, and Jack A. McNulty, "Biotechnology: Impact on Biological Warfare and Biodefense," *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 1, no. 3 (2003): 161–68, http://doi.org/10.1089/153871303769201815.

25 Petro, Plasse, and McNulty.

genomes.[26] The decoded genomes for the 1918 avian flu, smallpox, polio, and other viruses have been released by scientists and are now posted on various websites.[27] In an article in *Biosecurity and Bioterrorism*, Petro, Plasse, and McNulty stated:

> With the advent of recombinant DNA technology, researchers have developed standard methodologies for altering an organism's genetic makeup. Application of this technology to enhance traditional biological warfare agents has led to the classification of genetically modified BW agents as a separate category of BW agents. Examples of potential modifications include antibiotic resistance, increased aerosol stability, or heightened pathogenesis. Importantly, genetic modifications may alter epitopes or sequences used for detection and diagnostics, necessitating that multiple points of reference be incorporated into these systems and highlighting the need for security regarding bio-detection strategies. Ultimately, these modifications serve to increase effectiveness of a traditional BW agent or counteract known aspects of the target population's biomedical defense strategy without significantly manipulating the parental organism in a manner that might compromise natural properties suitable for biological warfare use.[28]

Essentially, if he or she possesses the proper skillset, an individual can make a biological agent more contagious, more resistant to treatments, and harder to detect.

The equipment needed to create enhanced biological agents is becoming increasing efficient and less expensive.[29] The automated commercial equipment used today can process biological material that once required numerous researchers, and it can do so in a fraction of the time when compared to past capabilities.[30] Used laboratory equipment with this biological processing power is now being sold on the second-hand market; nefarious actors can purchase a home laboratory with which to manufacture custom biological agents

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[26] Oligonucleotides are small segments of Deoxyribonucleic Acid (DNA) and Ribonucleic Acid (RNA) that are used in genetic testing and research purposes. Philip Bobbitt, *Terror and Consent* (New York: Knopf Doubleday, 2008), 103.

[27] Bobbitt, 103.

[28] Petro, Plasse, and McNulty. "Biotechnology," 162.

[29] Robert H. Carlson, *Biology Is Technology* (Cambridge, MA: Harvard University Press, 2010), 63–4.

[30] Carlson, 64.

for less than $5,000.[31] In 2015, researchers from the Johns Hopkins University Center for Health Security conducted a Delphi study among subject-matter experts about the likelihood of a large-scale biological attack within 10 years.[32] Of the respondents, 57.5 percent felt that a biological attack was possible.[33] The American public is even more concerned about biological attacks. According to a public opinion poll conducted by the Alliance for Biosecurity, 90 percent of Americans are worried that terrorists might use biological weapons against the United States or its allies.[34]

b. Radiological Warfare

Prior to the events of September 11, 2001, Americans rarely considered radiological terrorism a major concern to homeland security. The nuclear weapons used decades earlier are a distant memory for the emerging generation of Americans. However, a new type of warfare was launched against the United States on that Tuesday morning in 2001, and Americans are now more likely to believe that sophisticated attacks against the United States are a possibility.

Numerous existing and emerging terrorist cells and rogue nations have the ability to obtain the materials needed to construct a radiological dispersal device. According to the Occupational Safety and Health Administration, radiological dispersal devices "consist of radioactive material combined with conventional explosives. They are designed to use explosive force to disperse the radioactive material over a large area, such as multiple city-blocks."[35] These devices can kill anyone in the immediate vicinity of the explosion, but also cause a great amount of fear; most people understand very little about radiological

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[31] Carlson, 64.

[32] For the purpose of this study, researchers categorized a large-scale attack as one that impacts 100 or more individuals.

[33] Crystal Boddie et al., "Assessing the Bioweapons Threat., *Science* 349, no. 6250 (August 21, 2015): 792–3, https://doi.org/10.1126/science.aab0713.

[34] "American Perceptions of Biosecurity Preparedness," Alliance for Biosecurity, March 2016, https://www.allianceforbiosecurity.com/biosecurity-public-opinion-poll.

[35] "Radiological Dispersal Devices (RDD) / Dirty Bombs," Occupational Safety and Health Administration, accessed October 12, 2017, https://www.osha.gov/SLTC/emergencypreparedness/rdd_tech.html.

material. Psychological terrorism can induce panic and can also create a financial burden due to decontamination efforts.[36]

3. Threat of Biological and Radiological Terrorism

Biological warfare remains a threat in the modern era. The Japanese doomsday cult Aum Shinrikyo tried to weaponize the Zaire strain of Ebola in 1992 when preparing for its attacks; the group later settled on utilizing the nerve agent sarin.[37] Aum Shinrikyo also considered building a uranium bomb; the group was able to procure the necessary equipment to enrich its own uranium in an effort to contain operations within the organization.[38] Similarly, Osama bin Laden tried to procure a nuclear weapon from the former Soviet Union, reportedly spending more than £2 million on an intercessor in Kazakhstan.[39] In an interview regarding the state of Israel, Osama bin Laden stated, "We don't consider it a crime if we tried to have nuclear, chemical, biological weapons. Our holy land is occupied by Israeli and American forces. We have the right to defend ourselves and to liberate our holy land."[40] Clearly, Al Qaeda was not above using weapons of mass destruction; although bin Laden is dead, Al Qaeda remains a threat and may still intend to create WMDs.

In 2014, a laptop was recovered from a member of ISIS that contained instructions for developing biological weapons from bubonic plague, which can be easily found in an animal in the group's region.[41] In the same year, ISIS seized control of a former Iraqi chemical weapons facility that was believed to have more than 2,500 rockets containing

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[36] The public may demand a clean area be decontaminated due to fear that the environment is harmful.

[37] Gavin Cameron, "Multi-track Microproliferation: Lessons from Aum Shinrikyo and Al Qaida," *Studies in Conflict & Terrorism* 22, no. 4 (November 1, 1999): 277–309, http://doi.org/10.1080/10576 1099265658.

[38] Cameron.

[39] Cameron.

[40] "I Am Not Afraid of Death," *Newsweek*, January 10, 1999, http://www.newsweek.com/i-am-not-afraid-death-165374.

[41] Nada Eweiss, "Non-state Actors & WMD: Does ISIS Have a Pathway to a Nuclear Weapon?" British American Security Information Council, March 29, 2016, http://www.basicint.org/sites/default/files/NonStateActors_WMD_Mar2016.pdf.

dangerous nerve agents, such as sarin.[42] Per the International Atomic Energy Agency, ISIS also obtained more than 40 kilograms of uranium from an Iraqi university in 2014.[43] Although it is unlikely that ISIS has the materials necessary to enrich the uranium, the group could easily fashion a dirty bomb from the stolen uranium.[44]

North Korea has been testing its nuclear weapons program for more than a decade with the hope of fitting a nuclear weapon to a long-range missile. Additionally, the country announced it had successfully tested a hydrogen bomb in September 2017. Add this issue to the continued tension between the United States and North Korea, and there is an ever-present threat of a radiological disaster.[45] North Korea's first nuclear test occurred in 2006, at which point U.S. intelligence agencies had already briefed Congress on the emerging threat of Korean biological weapons. At the time, North Koreas abilities were limited; in December 2017, however, intelligence officials and weapons experts reported that North Korea was procuring the machinery to produce advanced biological weapons from "factories that can produce microbes by the ton."[46] Additionally, intelligence officials indicated that the production of these weapons and agents could go undetected since the production facilities are civilian factories.

Established and emerging adversaries wish to inflict harm on American citizens; as demonstrated by recent attempts to manufacture WMDs, this treat will continue. The deaths, as well as physiological and psychological consequences, resulting from WMDs would have a devastating impact on the American people.

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[42] Eweiss.

[43] Michelle Nichols, "Exclusive: Iraq Tells U.N. That 'Terrorist Groups' Seized Nuclear Materials," Reuters, July 9, 2014, https://www.reuters.com/article/us-iraq-security-nuclear/exclusive-iraq-tells-u-n-that-terrorist-groups-seized-nuclear-materials-idUSKBN0FE2KT20140709.

[44] Nichols.

[45] Joshua Berlinger and Taehoon Lee, "Nuclear Test Conducted by North Korea, Country Claims," CNN, September 3, 2017, https://www.cnn.com/2017/09/03/asia/north-korea-nuclear-test/index.html.

[46] Joby Warrick, "Microbes by the Ton: Officials See Weapons Threat as North Korea Gains Biotech Expertise," *Washington Post*, December 10, 2017, https://www.washingtonpost.com/world/national-security/microbes-by-the-ton-officials-see-weapons-threat-as-north-korea-gains-biotech-expertise/2017/12/10/9b9d5f9e-d5f0-11e7-95bf-df7c19270879_story.html.

4. Impact of Biological and Radiological Terrorism

A biological or radiological terrorist act could produce intense illness in the target area and elicit fear both nationally and worldwide. After September 11, for instance, Canada—though it was not directly under attack—created a security agency. Category A agents, such as anthrax, botulism, plague, smallpox, and tularemia, have the potential to create the most intense adverse impacts on public health.[47] Category B agents post the next greatest threat; these include: Q fever, brucellosis, glanders, meliododsis, encephaltis, tphyus fever, ricin, psittacosis, and waterborne diseases such as cholera.[48]

The release of a Category A agent would necessitate the need for a greater public health response from practitioners of public health/medical awareness and laboratory services, and would cause a need for increased public health surveillance.[49] An agent like anthrax can produce symptoms in as little as two days, but symptoms may not appear until 30 days after exposure. According to Jamrog, Shatz, and Smith, if anthrax were released into an area with a population of 2.1 million people (the population of the greater Washington, DC, area), a treatment delay could cause 50,000 people to die.[50] Since the initial symptoms of anthrax exposure are similar to the flu, many people may not be aware of their exposure; treatment could thus easily be delayed, increasing the possibility of death.

The impacts of radiological terrorism can be minimal to severe. Acute radiation syndrome (ARS) occurs when cells die after exposure to total ionizing radiation; for ARS to occur, however, an individual must receive a dosage that penetrates the body and enters into the organs. ARS symptomology is often based on an individual's sensitivity to radiation, the type of radiation, and the total radiation dose received. There are four phases of ARS: the prodromal phase, latent phase, phase of manifested illness, and recovery or

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[47] Lisa D. Rotz et al., "Public Health Assessment of Potential Biological Terrorism Agents," *Emerging Infectious Diseases* 8, no. 2 (February 2002): 226, http://doi.org/10.3201/eid0802.010164.

[48] Rotz et al., 226

[49] Rotz et al., 227.

[50] Diane Jamrog, Michael Shatz, and Cassandra Smith, "Modeling Responses to Anthrax and Smallpox Attack," *Lincoln Laboratory Journal* 17, no. 1 (2007): 118.

death.[51] The prodromal phase includes "gastrointestinal (GI) symptoms, headache, erythema, elevated core body temperature and malaise. An early onset of symptoms indicates a higher level of exposure. These symptoms can last a few days."[52] During the following latent phase, the individual feels better, perhaps normal, for a few hours to even a few weeks. Unfortunately, the radiation exposure manifests once again through additional illnesses such as bone marrow syndrome, gastrointestinal syndrome, or syndromes of the cardiovascular/central nervous system; sometimes patients can recover from bone marrow syndrome (depending on the level of radiation exposure), but recovery is unlikely from the others.[53] Fortunately, many terror groups do not have the capability to enrich materials, which is necessary for a radiological attacks. However, rogue nations may have these materials available.

B. LITERATURE REVIEW

This review covers information about fusion centers and JTTFs, public health decision making during crises, situational and domain awareness, public health situational awareness, information silos, and collaboration between public health and fusion centers. The literature examined in this review comes from official government documents, journal articles, official websites, popular literature, and think-tank organizations.

1. Fusion Centers and JTTFs

Fusion centers were created to house representatives from the array of homeland security enterprise agencies (both public and private), with the sole purpose of gathering, analyzing, and then sharing potential threat intelligence with law enforcement agencies.[54] These centers focus on "terrorism, criminal, and public safety matters in support of

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[51] "CDC Radiation Emergencies—Acute Radiation Syndrome: A Fact Sheet for Physicians," Centers for Disease Control and Prevention, August 23, 2017, https://emergency.cdc.gov/radiation/arsphysicianfactsheet.asp.

[52] Moti Hagby et al., "Health Implications of Radiological Terrorism: Perspectives from Israel," *Journal of Emergencies, Trauma and Shock* 2, no. 2 (2009): 118, http://doi.org/10.4103/0974-2700.50747.

[53] Centers for Disease Control and Prevention, "Acute Radiation Syndrome."

[54] Brienne Lenart et al., "Integrating Public Health and Medical Intelligence Gathering into Homeland Security Fusion Centres," *Journal of Business Continuity & Emergency Planning* 6, no. 2 (Winter 2012–Autumn 2013): 174–9.

securing communities and enhancing the national threat picture."[55] Another method of formal intelligence gathering and sharing is the country's 104 JTTFs, which focus primarily on terrorism and "other criminal matters related to various aspects of the counterterrorism mission."[56] Fusion centers and JTTFs work together "to safeguard our homeland and prevent criminal and terrorist activities."[57]

2. Public Health Decision Making during Crises

Public health practitioners must make important and difficult decisions during public health crises. This is especially true when determining school closures during an outbreak or deciding to distribute medical countermeasures. Unfortunately, in many cases, primary decision makers in public health may have little to no experience making tough decisions during crises. According to a 2009 RAND report, there are few tools available for "identifying, measuring, and improving public health crisis decision making."[58] Additionally, information for public health decision makers is often incomplete, which leads to a difficult and uncomfortable situation.[59] Public health officials are usually forced to balance the "needs of multiple stakeholder groups and manage political pressures that often attend these high-stakes decisions"[60] The public health sector traditionally uses a "consensus approach," which presents challenges when public health practitioners are expected to operate using the emergency-response Incident Command System, which employs top-down approach to decision making.[61] According to Seefried, public health leadership makes the assumption that "uncertainty is self-reducing over time" and that these incidents are "self-limiting"—the event will

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55 "Fusion Centers and Joint Terrorism Take Forces," Department of Homeland Security (DHS), July 29, 2016, https://www.dhs.gov/fusion-centers-and-joint-terrorism-task-forces.

56 DHS.

57 DHS.

58 Andrew Parker et al., *Measuring Crisis Decision Making for Public Health Emergencies* (Santa Monica, CA: RAND, 2009), xi, https://www.rand.org/pubs/technical_reports/TR712.html.

59 Parker et al., 1.

60 Parker et al., 1.

61 Parker et al., 1.

most likely end on its own.[62] These assumptions may render public health officials unable to identify the elements that signify a developing disaster. Public health practitioners may also assume that action on their part is not required, and that the response from other agencies—law enforcement, emergency management, and fire departments—is sufficient.[63] Furthermore, these public health decision makers often rely on an evidence-based approach that is highly regarded within the medical and public health communities; but when all parties (including law enforcement) do not have this evidence during a crisis, this model may breed indecision among stakeholders.[64]

3. Situational Awareness and Domain Awareness

When decision makers do not have enough information during public health crises, they in turn face limited situational awareness.[65] The term "situational awareness" stems from U.S. Air Force pilots during the Korean War who needed to know the location of the combatant's plane in order to plan their next move.[66] Army Field Manual 1-02, *Operational Terms and Graphics*, defines situational awareness as:

> Knowledge and understanding of the current situation which promotes timely, relevant and accurate assessment of friendly, competitive and other operations within the battlespace in order to facilitate decision making. An informational perspective and skill that fosters an ability to determine quickly the context and relevance of events that are unfolding.[67]

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[62] Valerie Seefried, "Timely and Accurate Decision-Making during U.S. Public Health Emergencies: Incremental Dynamic Decision-Making (IDD) for Public Health Emergency Response," (dissertation, George Washington University, 2009), 39, http://search.proquest.com.libproxy.nps.edu/docview/819632779.

[63] Seefried, 40.

[64] Seefried,42.

[65] Seefried, 42.

[66] Eric Toner, "Creating Situational Awareness: A Systems Approach" (report, Center for Biosecurity of UPMC, 2009), http://www.centerforhealthsecurity.org/our-work/publications/creating-situational-awareness-a-systems-approach.

[67] Toner.

"More simply," the U.S. Air Force states, "it's knowing what is going on around you."[68] To have situational awareness, Toner believes that a decision maker must have access to "the right information (without a lot of noise)," and that he or she must be able to receive and analyze the information "and then [be] able to do something useful with it."[69] Situational awareness exists within *domain* awareness. While situational awareness pertains to a specific incident, domain awareness is the "30,000-foot level" of awareness that pertains to the common elements across a specified region.[70]

Following the 9/11 Commission report's publication, fusion centers were created at the local, state, and federal levels of government with the intent to promote information sharing and interdisciplinary collaboration. As of 2017, every state had at least one fusion center, providing a national infrastructure of information sharing at all levels of government. Fusion centers and Joint Terrorism Task Forces (JTTFs), which are both functions of joint law enforcement, can enhance both situational and domain awareness through collaborative relationships.

4. Public Health Situational Awareness

Events such as the severe acute respiratory syndrome (SARS) outbreak, Hurricane Katrina, and the anthrax letters underline the need to enhance public health decision making processes. It is often difficult to make decisions during emergencies, and many public health practitioners have little experience doing so; they do not respond to emergency situations as often as responders from other disciplines do, such as firefighters, law enforcement agents, and public works employees. As Lenart et al. write, public health practitioners face challenges to "validate, extract and subsequently define the critical elements of the information provided in official government communiques, in the context of their response duties during an emergency."[71] Understandably, practitioners are

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[68] Mark Edward Lender and Garry Wheeler Stone, *Fatal Sunday: George Washington, the Monmouth Campaign, and the Politics of Battle* (Norman: University of Oklahoma Press, 2016).

[69] Toner, "Creating Situational Awareness."

[70] Louisiana State University National Center for Biomedical Research & Training, *Critical Decision Making for Complex Coordinated Attacks* (Baton Rouge: Louisiana State University, 2017), 3-26.

[71] Lenart et al., "Integrating Public Health into Homeland Security," 175.

uncomfortable making decisions based on incomplete information with little to no experience or training in crisis decision making. This leads to "suboptimal, or worse, inappropriate responses [when] health security information is provided in the absence of context or it becomes fragmented across amassing situation reports as the incident progresse[s], thus increasing the potential for human error."[72]

According to RAND, situational awareness in a public health context "incorporates an assessment of threats and vulnerabilities for human health and the resources available for mitigating health effects during a response."[73] The 2006 Pandemic and All-Hazards Preparedness Act (PAHPA) states that "the Secretary, in collaboration with State, local, and tribal public health officials, shall establish a near real-time nationwide public health situational awareness capability."[74] Additionally, Homeland Security Presidential Directive 21 (HSPD-21) discusses the timely flow of relevant information during a public health emergency in several sections. Section 8 states:

> The United States has tremendous resources in both public and private sectors that could be used to prepare for and respond to a catastrophic health event. To exploit those resources fully, they must be organized in a rationally designed system that is incorporated into pre-event planning, deployed in a coordinated manner in response to an event, and guided by a constant and timely flow of relevant information during an event. This Strategy establishes principles and objectives to improve our ability to respond comprehensively to catastrophic health events. It also identifies critical antecedent components of this capability and directs the development of an implementation plan that will delineate further specific actions and guide the process to fruition.[75]

Section 11 states:

> It is the policy of the United States to plan and enable provision for the public health and medical needs of the American people in the case of a catastrophic health event through continual and timely flow of information

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[72] Lenart et al., 175.

[73] Parker et al., "Measuring Crisis Decision Making," xii.

[74] Pandemic and All-Hazards Preparedness Act, Public Law 109-417 (2006): 3678, www.govtrack.us/congress/bills/109/s3678/text.

[75] White House, *Homeland Security Presidential Directive 21: Public Health and Medical Preparedness*, HSPD-21(Washington, DC: White House, 2007), https://www.hsdl.org/?abstract&did=480002.

> during such an event and rapid public health and medical response that marshals all available national capabilities and capacities in a rapid and coordinated manner.[76]

Section 35 states:

> Within 180 days after the date of this directive, the Secretary of Homeland Security, in coordination with the Attorney General, the Secretary of Health and Human Services, and the Director of National Intelligence, shall establish a mechanism by which up-to-date and specific public health threat information shall be relayed, to the greatest extent possible and not inconsistent with the established guidance relating to the Information Sharing Environment, to relevant public health officials at the State and local government levels and shall initiate a process to ensure that qualified heads of State and local government entities have the opportunity to obtain appropriate security clearances so that they may receive classified threat information when applicable.[77]

PAHPA furthrmore states: "the Secretary, in collaboration with State, local, and tribal public health officials shall establish a near real-time electronic nationwide public health situational awareness capability."[78]

HSPD-21 and PAHPA created an avenue for information-sharing capabilities between public health agencies and all levels of government. Public health officials need the information to determine if an event is a legitimate threat. The power to do so does not immediately materialize during an event; it comes from the process of information sharing initiated prior to an emergency.

5. Information Silos

An agricultural silo holds and protects important grain that directly impacts a farmer's livelihood; while *information* silos also hold important content, unlike the farmer's silo, information silos cause trouble for innovation and success across various organizations. Information silos occur when sharing between departments or agencies does

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[76] White House, HSPD-21.

[77] White House, HSPD-21.

[78] Revitalizing the Centers for Disease Control and Prevention, *U.S. Code* 42 (2013) § 247d-4, https://www.law.cornell.edu/uscode/text/42/247d%E2%80%934.

not occur due to a modular hierarchy. They make sharing information and collaborating nearly impossible.

As previously mentioned, Eggers introduced the idea of "hacking the silos" in his book *Delivering on Digital: The Innovators and Technologies That Are Transforming Government*. Horizontal information sharing, he says, cannot be achieved unless the silos that impede communication are removed. Eggers discusses a Government Accountability Office report that examined three federal governmental departments and found duplicated projects in the Department of Defense, DHS, and the Department of Health and Human Services. The result was a staggering $321 million in duplicated efforts.[79] Eggers also discusses David Bray, the chief information officer for the Federal Communications Commission (FCC). Upon Bray's arrival, the FCC had 207 software applications for 1,750 employees—roughly one application for every eight employees.[80] Essentially, every time a request was made, the FCC made a new application without consulting other federal agencies, resulting in duplicated efforts; Bray discovered that 80 percent of his budget maintained these systems.[81] Bray led the effort to streamline products, subjecting each application to an evaluation process. In the end, he saved the FCC more than $3.5 million.[82] While these examples do not directly relate to law enforcement or public health decision making, they show how time, funding, and resources can be saved through horizontal communication.

In an attempt to "hack the silos," the Department of Justice (DOJ) released a document entitled *Baseline Capabilities for State and Major Urban Area Fusion Centers* in 2008, along with an appendix entitled *Health Security: Public Health and Medical Integration for Fusion Centers* in 2011. The appendix emphasized the importance of public health in the homeland security enterprise, stating, "Integrating the public health and healthcare community into a fusion center does not require additional capabilities, but

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[79] Eggers, *Delivering on Digital*, loc 2329.

[80] Eggers, loc 23329.

[81] Eggers, loc 23329.

[82] Eggers, loc 23329.

simply the incorporation of their information, expertise, and resources into the existing fusion center operation."[83]

In the same appendix, the DOJ recognized the importance of information sharing with public health. The document states, "Achieving national health security requires understanding and sharing information related to human-caused and natural incidents, building a network of trusted individuals involved in robust information sharing partnerships, building a long-term and sustainable risk management strategy that address a changing threat environment, and maximizing the effective use of resources."[84] The appendix provides information-sharing capabilities between public health stakeholders and fusion centers. These capabilities pertain to improving abilities in chemical, biological, radiological, nuclear, and explosives (CBRNE) detection, response, and decontamination efforts. The document also supports the efforts of the 2006 PAHPA, emphasizing interagency collaboration. Aside from participation in fusion centers, the appendix stresses that the public health sector should engage with law enforcement agencies on a regular basis; the two disciplines could participate in public health preparedness exercises, or create action plans to mitigate observed gaps in real-world response efforts or in exercises.[85]

6. Collaboration

Though perhaps a cliché, the common adage "waiting until an emergency to exchange business cards is a terrible decision" certainly applies to public health crises. While efforts have been made to improve collaboration between the law enforcement and public health disciplines, public health stakeholders are still underrepresented in U.S. fusion centers. Many agencies have expressed the importance of collaboration among fusion centers/JTTFs and public health agencies. As Butler et al. wrote in 2002,

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[83] DHS and Global Justice Information Sharing Initiative, *Health Security: Public Health and Medical Integration for Fusion Centers: An Appendix to the Baseline Capabilities for State and Major Urban Area Fusion Centers* (Washington, DC: Department of Justice, 2011), https://www.hsdl.org/?abstract&did=685166.

[84] DHS and Global Justice Information Sharing Initiative, 3.

[85] DHS and Global Justice Information Sharing Initiative, 3.

"Partnerships between public health and law enforcement is prerequisite to sound bioterrorism planning and response."[86] Several agencies are beginning to agree with this statement; both the Department of Justice and the National Governors Association have pushed for improvements to the public health–law enforcement relationship. But support for the public health sector joining forces with JTTFs and fusion centers does not stop there. In a 2010 hearing before the U.S. House of Representatives Committee on Homeland Security for the WMD Prevention and Preparedness Act of 2010, Chairman Bob Graham and Vice Chairman Jim Talent, stated:

> One important issue not addressed in the intelligence section is the problem of not including public health personnel in many of the fusion centers. Only a handful of these centers currently include public health officials. We all need to understand, in the 21st century, public health is a critical element of national and homeland security. Public health resources need to be fully integrated with law enforcement and traditional first responders.[87]

The anthrax events in September and October 2001 provide insight into how public health and law enforcement officials have worked together in the past. In Florida, the anthrax cases were originally designated a public health issue rather than a law enforcement matter, since officials believed they were caused by naturally occurring anthrax. However, public health officials alerted law enforcement early in the investigation, and later determined that the cases were inhalational—a rarity in the United States; given the heightened awareness to biological weapons following 9/11, public health and law enforcement officials were more vigilant.[88] Law enforcement involvement increased considerably when public health officials realized that anthrax had been released intentionally.[89]

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[86] Jay C. Butler et al., "Collaboration between Public Health and Law Enforcement: New Paradigms and Partnerships for Bioterrorism Planning and Response," *Emerging Infectious Disease Journal* 8, no. 10 (October 2002): 1152–6, http://doi.org/10.3201/eid0810.020400.

[87] Bob Graham and Jim Talent, "Hearing on the Weapons of Mass Destruction Prevention and Preparedness Act of 2010," Heritage Foundation, accessed May 4, 2017. http://www.heritage.org/research/testimony/hearing-on-the-weapons-of-mass-destruction-prevention-and-preparedness-act-of-2010.

[88] Butler et al., "Public Health and Law Enforcement," 1157.

[89] Butler et al., 1157.

Increased integration is needed; the DOJ publications imply, even, that increased integration is a federal mandate. However, although the DOJ reports do not indicate the current degree of integration, they do suggest that the public health sector has not been fully integrated within all fusion centers.

7. Conclusion

Fusion centers are primarily staffed by law enforcement officials; but as Lenart et al. point out, some fusion centers are slowly integrating a multidisciplinary approach that includes other first responder disciplines.[90] The questions remain: What is the current status of collaboration? How do fusion centers obtain public health information? How do public health officials obtain specific information that is applicable to their situations? The answers to these questions vary and depend primarily on the connections and relationships that have been established between public health partners and fusion centers at the local and state levels of government.[91]

C. RESEARCH QUESTION AND THESIS OVERVIEW

This thesis asks the more pointed question: What are the current rates of public health integration within fusion centers and JTTFs, and what factors contribute to this integration? By considering this question, this thesis examines how public health integration with fusion centers and JTTFs may be improved. A survey was created for leaders from local and state fusion centers, JTTFs, and public health departments.

Following this introduction, Chapter II explores the current programs in place and their stakeholders. Chapter III discusses the survey methodology, and Chapter IV examines the survey results. Chapter V reviews the data and makes conclusions, which are used to create policy recommendations from the discussion in Chapter VI.

[90] Lenart et al., "Integrating Public Health into Homeland Security," 176.

[91] Lenart et al., 176.

II. CURRENT STAKEHOLDERS AND PROGRAMS

In most bio-threat situations, law enforcement and public health agencies conduct their own independent investigations, using their respective evaluation procedures and protocols.[92] According to Strom and Eyerman, multiagency coordination efforts are often difficult to maintain in countries like the United States, where there are multiple levels of government.[93] Strom and Eyerman also believe that coordination is a difficult task for agencies that have differing standard operating procedures and rarely work together.[94]

Representatives from law enforcement and public health were required to work together following 9/11, despite initial friction. For example, several white powder incidents in Washington, DC., West Palm Beach, Florida, and New York City in the months following 9/11 caused strife between public health and law enforcement entities. In an interview with RTI International, a law enforcement officer recalled the arguments that took place between "high-ranking state police officials" regarding the inclusion of public health sector.[95] While this debate took place in government offices, state troopers in the field refused to respond to white powder incidents due to uncertainty, and "their lack of expertise and misinformation about potential dangers posed to them."[96] Additionally, the high-ranking officials wanted to limit testing of the white powder to the state forensic laboratory, but, unlike the public health laboratory, the forensic laboratory did not have the proper equipment. Ultimately, after much discussion, protocols were put into place that allowed the public health laboratory to conduct specimen analysis and share the results with the proper law enforcement officials.[97] While distrust of the public health laboratory

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92 Kevin J. Strom and Joe Eyerman. "Interagency Coordination in Response to Terrorism: Promising Practices and Barriers Identified in Four Countries," *Criminal Justice Studies* 20, no. 2 (June 2007): 132, https://doi.org/10.1080/14786010701396871.

93 Strom and Eyerman, 132.

94 Strom and Eyerman, 132.

95 Joe Eyerman and Kevin Strom, "A Cross-national Comparison of Interagency Coordination between Law Enforcement and Public Health," RTI Project Number 08914 (research report, NC: RTI International, 2005), https://www.ncjrs.gov/pdffiles1/nij/grants/212868.pdf.

96 Eyerman and Strom.

97 Eyerman and Strom.

was unfounded in this instance, some events that occur within the homeland security enterprise necessitate caution when sharing sensitive information.

In February 2018, CNN reported that "anti-terrorism" documents were found in a seatback pocket on an airplane. The documents were the after-action report and improvement plan written following a Super Bowl LII BioWatch exercise. The documents were not classified, but were marked as "for official use only." Additionally, the documents' handling instructions read, "at a minimum, this document should be stored in a locked drawer after business hours. The contents should not be shared with individuals who do not have an operational need-to-know. The document should be shredded before discarding."[98] It is suspected that these documents were left on the airplane by a public health official working for or with DHS. Inadvertent leaks or exposure of sensitive information occur within every discipline; this can make it difficult for law enforcement practitioners to trust someone from another discipline.

This chapter examines current programs that facilitate integration of public health considerations into primarily law enforcement or intelligence structures. Fusion centers and JTTFs each offer specific opportunities for this type of integration. This chapter also examines what types of information can be collected with public health instruments and how current collaboration schemes do not fully incorporate public health data.

A. FUSION CENTERS

Fusion centers focus primarily on "terrorism, criminal, and public safety matters in support of securing communities and enhancing the national threat picture."[99] Lenart et al. state that "fusion centres are designed to be centres with representatives from various law enforcement agencies who gather, analyse, and share potential threat information with other federal, state, and local law enforcement agencies."[100] The concept of the fusion

[98] Scott Glover and Drew Griffin, "Super Bowl National Security Docs Left on Plane," CNN, February 5, 2018, https://www.cnn.com/2018/02/05/us/dhs-super-bowl-national-security-documents-left-on-plane-invs/index.html.

[99] DHS, "Fusion Centers and Joint Terrorism Take Forces."

[100] Lenart et al., "Integrating Public Health into Homeland Security," 175.

center originated before 9/11, but only existed in a few locales, and had limited collaboration with law enforcement entities. Following 9/11, the authors of the 9/11 commission report stated that limited collaboration resulted in a failure to "connect the dots" and that the "biggest impediment was the human or systematic resistance to sharing information."[101]

Fusion centers are not controlled by the federal government, but they often operate using federal grant funding.[102] The Federal Bureau of Investigation (FBI) also provides an integral service, offering liaisons and access to FBI intelligence.[103] In addition to the FBI, other federal agencies have a working relationship with fusion centers on specific cases. These agencies include the Department of Defense, the United States Secret Service, the Department of the Treasury, Customs and Border Protection, Immigration and Customs Enforcement, and the Transportation Security Administration (TSA), among others. The extent of fusion centers' relationships with federal agencies varies across the country and is largely dependent upon the operational protocols for each fusion center.[104]

Fusion centers have faced harsh criticism over the past decade. A 2012 RAND publication, for instance, criticized fusion centers, claiming the national network they create is too great to be useful; the publication suggested that fusion centers foster a smaller network that focuses solely on high-risk metropolitan areas.[105] In a 2013 report, the Senate Permanent Subcommittee on Investigations specifically criticized DHS for failing to establish a national standard for fusion centers, and for failing to prove that fusion center

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101 Alon Peled, *Traversing Digital Babel: Information, E-Government, and Exchange* (Cambridge, MA: MIT Press, 2014), 16.

102 Andrew Coffey, "Evaluating Intelligence and Information Sharing Networks: Examples from a Study of the National Network of Fusion Centers" (issue brief, George Washington University, 2015), https://cchs.gwu.edu/sites/cchs.gwu.edu/files/downloads/CoffeyFusionCenterPaper-CCHS.pdf.

103 Coffey.

104 Coffey.

105 Michael Downing and Matt Mayer, "The Domestic Counterterrorism Enterprise: Time to Streamline" (issue brief, Heritage Foundation, 2012), http://thf_media.s3.amazonaws.com/2012/pdf/ib3748.pdf.

funding had led to the apprehension of suspected terrorists.[106] The subcommittee also accused DHS of "overstating fusion center success stories."[107] DHS, however, claimed that the subcommittee report relied on outdated information.[108]

B. PUBLIC HEALTH INTEGRATION

Public health and law enforcement officials work together when a public health emergency occurs due to criminal action, but each discipline approaches the investigation differently. Butler argues that the type of attack—if it is overt or covert—determines the investigation style.[109] An overt attack is usually followed by a claim of responsibility, such as in many attacks conducted by ISIS. Covert attacks are typically not immediately apparent; with a covert attack, for instance, the first indication may be a sick patient reporting symptoms to a physician. An overt scenario would primarily be investigated by a law enforcement entity, but in the covert scenario, public health officials will likely be the first to recognize a pattern and start an investigation. This means a law enforcement response may be delayed. However, if public health and law enforcement agencies share information and vet intelligence, they may be able to detect the attack sooner. Typically, the homeland security enterprise does not share information with public health entities. Many public health leaders do not hold the proper security clearance to handle sensitive information, nor do they have access to the proper facilities or infrastructure for receiving classified information.[110] Releasing sensitive information through insecure channels increases the likelihood that the information will also reach the community at large, which could induce panic or disruption an investigation.[111]

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106 Carl Levin and Tom Coburn, "Federal Support for and Involvement in State and Local Fusion Centers" (staff report, United States Senate Permanent Subcommittee on Investigations and Committee on Homeland Security and Governmental Affairs, 2013).

107 Coffey, "Evaluating Intelligence and Information Sharing Networks," 3.

108 Coffey, 36.

109 Butler et al., "Public Health and Law Enforcement," 1152.

110 Lenart et al., "Integrating Public Health into Homeland Security," 176.

111 Lenart et al., 176.

The majority of officials who work in fusion centers come from law enforcement agencies.[112] According to research from Andrew Coffey, the quality of a fusion center's products and services is directly affected by the strength of the fusion center's relationships with other disciplines.[113] Accordingly, fusion centers have been attempting to adopt a multi-agency/organizational inclusion concept.[114] Examining this phenomenon from a public health viewpoint, how do fusion centers obtain health-related information? The answer varies and, as Coffey alludes, depends on the relationships each individual fusion center has with its public health counterparts. However, with the exception of the vague details in the fusion center health security appendix, there are no national standard operating procedures for integrating public health considerations into fusion center functions—this includes an absence of standards regarding public health intelligence, or the necessary qualifications for personnel.[115]

Understanding how fusion centers form and maintain relationships with other disciplines is a difficult task. As Coffey points out:

> neither scholars nor practitioners have treated the network as a network, instead focusing on areas like civil liberties or individual organizational capabilities and output based metrics. As a result, very little is known about the traits and characteristics of fusion center personnel, the relationships between organizational level capacity and capacity at other levels of the network, the strength of relationships between individuals and organizations, and performance outcomes like effectiveness.[116]

Managing a fusion center's relationships can be challenging simply due to the sheer number of relationships. Fusion centers must maintain relationships with other fusion centers, DHS liaisons, FBI agents and their respective field offices, other federal intelligence entities on a case-by-case basis, members of local and state law enforcement,

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[112] Lenart et al., 176.

[113] Coffey, "Evaluating Intelligence and Information Sharing Networks."

[114] Lenart et al., "Integrating Public Health into Homeland Security," 176.

[115] Lenart et al. 176. There is the fusion center health security appendix, but this document mostly speaks to how public health can benefit the fusion center and how to share information. The document does not actually discuss methods for setting up these relationships with public health agencies.

[116] Coffey, "Evaluating Intelligence and Information Sharing Networks," 36.

and non–law enforcement practitioners such as public health and emergency management representatives, as well as any established private-sector partnerships.[117]

Lenart et al. argue that public health and other response organizations should work closely with fusion centers, especially in the areas of "biosurveillance, cohorting of individuals suspected of being exposed to infectious diseases or the need to order quarantine, evacuation or shelter in place."[118] In the 2001 anthrax case, a physician was the first to recognize that anthrax was the causative agent in a patient's illness; this led to an epidemiological investigation, which resulted in a separate investigation by appropriate law enforcement officials.

The public health sector is a consumer of the information disseminated from fusion centers. As consumers, public health practitioners (depending on their clearance status) can receive "timely unclassified and/or classified threat awareness information and risk analysis that may enable them to better guide their preparedness activities."[119] This ability to obtain sensitive information may enhance public health practitioners' capability to identify indicators of public health emergencies and respond in an appropriate manner.[120]

Public health practitioners can be contributors and collaborators as well. They can serve as subject-matter experts and can help analyze information and disseminate fusion center intelligence products. As contributors, public health personnel can share information with a fusion center pertaining to suspected criminal- or terrorism-related activities.[121] Additionally, public health professionals can serve as educators within a fusion center; they can train fusion center analysts to deal with public health emergency preparedness and response.[122] The DOJ health security appendix also references the Health Security Intelligence Enterprise (HSIE), created by the Office of Intelligence and Analysis at

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[117] Coffey, 51.

[118] Coffey, 177.

[119] Heather Brown, "Health Security Intelligence Enterprise" (paper presented at the Preparedness Summit, Atlanta, GA, April 26, 2017).

[120] Brown.

[121] Brown.

[122] DHS and Global Justice Information Sharing Initiative, *Health Security Appendix*, 8.

DHS—another collaborative approach that aims to include public health practitioners in the homeland security enterprise. The HSIE works through collaborative efforts among various DHS agencies, including the DHS Office of Health Affairs and FEMA.[123] Its mission is

> to make the nation safer from all crimes and all hazards, through timely and appropriate exchange of information among healthcare, public health community, and other multi-disciplinary partners, including the Intelligence Community, law enforcement, fire service, emergency management, and private sector.[124]

HSIE seeks to increase awareness about health security information by engaging stakeholders, which enables them to identify and share resources "in hopes of improving health security within the intelligence community."[125]

The Kansas Intelligence Fusion Center also utilizes public–private partnerships across the state. If the fusion center encounters a biological threat or other type of public health emergency, its staff includes the experts that can help, such as Kansas's state epidemiologist, the state veterinarian for instances of vector-borne disease, and "public health experts" from the Kansas State University and the University of Kansas.[126] All of these "subject-matter experts hold Top Secret/Sensitive Compartmented Information (TS/SCI) clearances" and serve as part-time public health representatives in the fusion center.[127] This structure works well because it grants fusion center personnel access to important expertise during a public health emergency. Similarly, the state fusion center in Michigan utilizes functional desk groups that align agencies based on their disciplines. The "environmental desk" is staffed by practitioners from public health, environmental, and

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[123] DHS and Global Justice Information Sharing Initiative, 8.

[124] Brown, "Health Security Intelligence Enterprise."

[125] Brown.

[126] Vector-borne diseases are diseases that allow transmission between an animal and a human. The vast majority of emerging diseases come from animals. A few examples are ebola, zika, H1N1, and MERS-CoV. National Governors Association, "Improving State Efforts to Prepare and Respond to Public Health Emergencies" (NGA paper, National Governors Association, 2016), 5, https://www.nga.org/files/live/sites/NGA/files/pdf/2016/1609ImprovingStateEffortsPublicHealth.pdf.

[127] National Governors Asosciation, 5.

agricultural agencies who monitor public health, food and water sources, and healthcare organizations for potential threats to public safety.[128] Having these representatives at the same desk allows information to flow quickly and easily between each agency, which is vital during response activities. According to a presentation from the DHS Office of Health Affairs, there have been several examples of public health and fusion center collaboration. In the past, public health practitioners have interpreted medical information to identify indicators of an emerging terroristic threat and have provided support to law enforcement investigations.[129] Public health officials have assisted with threat assessments for large events such as the Super Bowl, NASCAR races, political conventions, and the Boston Marathon.[130] Additionally, public health officials have helped with investigations into lost or stolen CBRNE materials and environmental protection issues, such as issues with water systems or foodborne-illness outbreaks.[131] However, not every fusion center incorporates public health consultation into their operations.

In 2012, there were 51 state/territorial fusion centers and 26 major urban area fusion centers.[132] In a 2012 report, 33.8 percent of fusion centers self-selected "public health and healthcare" as a mission area applicable to their operations.[133] In 2013, that number increased to 52.6 percent, and again to 65.4 percent in 2014.[134] Unfortunately, the annual reports stopped discussing mission area rates in 2015; it should be noted, too, that these results are based on self-assessments and the number of products produced by the fusion centers themselves.[135] Additionally, the scope of the public health and healthcare mission area is unknown.

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[128] Lenart et al., "Integrating Public Health into Homeland Security," 177.

[129] Brown, "Health Security Intelligence Enterprise."

[130] Brown.

[131] Brown.

[132] DHS et al., "2012 National Network of Fusion Centers, Final Report" (report, DHS, 2013), 4, https://www.hsdl.org/?abstract&did=740776.

[133] DHS et al.

[134] DHS et al., "2013 National Network of Fusion Centers, Final Report," 10.

[135] Coffey, "Evaluating Intelligence and Information Sharing Networks," 35.

In 2014, 48 programs engaged public health and healthcare in the "Multidisciplinary participation in Fusion Liaison Officer Programs"; that number remained the same for 2015.[136] In the 2015 report, this statistic was the only reference to the public health discipline. In the "2014–2017 National Strategy for Fusion Centers," public health is referenced twice:

> The second goal addresses the needs of those who serve the public within an individual fusion center's area of responsibility. Although the vast majority of crimes are solved by law enforcement patrol, violent crime is also a significant public health issue. The terrorist attacks of 9/11 were the deadliest day in history for our firefighters and emergency management systems, and emergency medical systems are impacted by and play a central role in bringing elective and lifesaving assistance to emergencies daily. Therefore, all public safety providers must be included in—and served by—the NNFC.[137]

> A key component of a fusion center's success, as identified in the Fusion Center Guidelines, is the integration of government and private sector partners into center operations and activities, as appropriate, such as emergency services, criminal justice, health and public health services, private security, and government.[138]

The information provided in these reports is helpful, but does not paint an entirely clear picture about specific public health integration in fusion centers.

C. JOINT TERRORISM TASK FORCES (JTTFS)

In addition to fusion centers, JTTFs also offer a method of formal intelligence gathering and sharing. Nationally, there are 104 JTTFs, which comprise 4,000 members from 500 state and local agencies as well as 55 federal agencies.[139] These organizations focus primarily on terrorism and "other criminal matters related to various aspects of the

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136 DHS et al., "2015 National Network of Fusion Centers, Final Report," (report, Department of Homeland Security, 2016), 10, https://www.hsdl.org/?abstract&did=796365.

137 National Fusion Center Association, "2014–2017 National Strategy for the National Network of Fusion Centers" (report, National Fusion Center Association, 2014), v, https://www.hsdl.org/?abstract&did=759311.

138 National Fusion Center Association, 1.

139 "Joint Terrorism Task Forces," FBI, accessed November 10, 2017, https://www.fbi.gov/investigate/terrorism/joint-terrorism-task-forces.

counterterrorism mission," and can offer a direct input for intelligence purposes.[140] Fusion centers and JTTFs work together "to safeguard our homeland and prevent criminal and terrorist activities."[141] Unlike fusion centers, there are no organized efforts to incorporate public health practitioners into JTTFs. These task forces have been negatively impacted by high levels of staff turnover, and typically do not employ public health practitioners because they are not sworn law enforcement officers.[142]

JTTFs, much like fusion centers, use a multidisciplinary approach across various agencies to protect the homeland. However, they face barriers when it comes to interagency collaboration and, although they are staffed by law enforcement and public safety officers, they generally do not involve public health agencies; in 2005, Eyerman and Strom could identify only one JTTF that had a public health subject-matter expert on its team.[143] D'Angelo argues that, if a JTTF wishes to succeed, it must implement collaborative processes that leverage the multitude of resources at its disposal, and then must identify best practices that will help the organization streamline information sharing, "cross-pollinate" innovation, and maximize resources that are not freely available.[144] D'Angelo states, "Successful collaboration involves initiatives that integrate and collaborate with non-JTTF participants to include, but not be limited to, stakeholders representing smaller state and local law enforcement departments, public health, first responders, and private industry."[145]

In 2004, the state of California conducted a full-scale multiagency exercise that included more than 80 agencies, from which more than 1,000 personnel participated. After the DHS-sanctioned exercise, the following recommendation was made:

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[140] FBI; Louisiana State University, *Critical Decision Making*, 5-15.

[141] Lenart et al., "Integrating Public Health into Homeland Security."

[142] Eyerman and Strom, "Cross-national Comparison."

[143] Eyerman and Strom.

[144] Anthony P. D'Angelo, "Strategic Change and the Joint Terrorism Task Force: Ideas and Recommendations" (master's thesis, Naval Postgraduate School, 2007), 29, https://www.hsdl.org/?abstract&did=483414.

[145] D'Angelo, 29.

> Public Health needs representation in the JTTFs, so they can be better prepared for responding to a WMD event. Public health officials should identify representation and obtain a security clearance so passing information to them will be without incident. Building relationships with law enforcement officials will also help public health be more involved in the circle of information as well as helping others understand the importance public health plays in WMD incidents.[146]

Unlike for fusion centers, there is little literature that encourages JTTFs across the United States to involve public health practitioners, though some agencies and key players are suggesting that this integration would be beneficial. Although FBI field offices have WMD coordinators who understand public health concerns, having a public health subject-matter expert would bolster local JTTFs' capabilities.

D. CURRENT METHODS OF INFORMATION GATHERING FOR PUBLIC HEALTH

Several functions are used to gather information for public health purposes before, during, and after an event. However, many programs responsible for these functions have documented gaps and have even become the target of congressional criticism. Regardless, the programs outlined in the section are the best avenue for public health practitioners to gather information during times of emergency.

1. BioWatch

During a bioterrorism event, the homeland security enterprise may not be immediately aware of an issue. To mitigate the impact to life and health, the Bush administration established the BioWatch Program, under DHS's Office of Health Affairs, in 2001 with the intent to provide early detection of bioterrorism attacks and to assist decision makers, at all levels of government, by providing data that may save lives during a biological event.[147] There are more than 30 established BioWatch Program locations in large metropolitan areas across the country; each is equipped with air-monitoring collectors

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146 Morrissey, "Integration of Medical and Health Representation," 7.

147 "The Biowatch Program," DHS, last modified October 24, 2016, https://www.dhs.gov/biowatch-program.

set up in undisclosed locations, both outdoor and indoor.[148] These collectors draw air through filters that collect particulates in the air 24 hours a day, 365 days per year.[149] Each day, the filters are collected and sent to an approved laboratory to be tested for select biological agents that have the potential to make the public ill. DHS believes that early detection can cut the illness and fatality rate in half.[150] Typically, a representative from the local FBI field office is a part of the BioWatch Advisory Committee, which means information from these tests will most likely be shared with the JTTF and fusion center; however, JTTF and fusion center staff may not fully understand the detrimental health impacts of the agent in question.

BioWatch has limitations, however, that can prevent detection of a public health crisis. For instance, most of the collection filters are located in highly urban areas, but not every urban area has a BioWatch Program. Furthermore, data is sometimes collected inconsistently, and the current process is not instantaneous: samples must be collected and tested, which can delay recognition that an attack has occurred.[151] Additionally, a BioWatch Actionable Result may occur in an area, even if action is not warranted.[152] A primary example of this phenomenon is the frequent tularemia bacteria positive results from BioWatch samples in Denver, Colorado.[153] As Maron points out, the samples "were not false positives, they did accurately pick up tiny, background amounts of DNA from organisms naturally present in the environment—in effect, they were false alarms because

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148 "BioWatch Fact Sheet," DHS, last modified August 10, 2016, https://www.dhs.gov/publication/biowatch-program-factsheet.

149 DHS.

150 "BioWatch Infographic," Department of Homeland Security, last modified August 10, 2016, https://www.dhs.gov/publication/biowatch-program-infographic.

151 Versus other threats that can be detected quickly. An example of this is the detection of radiological material. Time is needed for biological culture. Randall Larsen et al., *Jump Start: Accelerating Government Response to a National Biological Crisis* (Baltimore: UPMC Center for Health Security, 2015), 45–6, http://www.upmchealthsecurity.org/our-work/pubs_archive/pubs-pdfs/2015/JumpStart.pdf.

152 A BioWatch Actionable Result is the result of a positive specimen test. When a filter tests positive for a certain biological agent, this results in a meeting among the local BioWatch Advisory Committee to determine what needs to be done to respond to the positive test result.

153 Dina Fine Maron, "U.S. Bioterror Detection Program Comes under Scrutiny," *Scientific American*, June 17, 2013, https://www.scientificamerican.com/article/us-bioterror-detection/.

they signaled the potential occurrence of a terrorist attack when none had occurred."[154] Larsen et al. state that a BioWatch Actionable Result "does not automatically trigger an immediate response from public health officials" because a response may be a "high regret" situation that can lead to "social, economic, ethical and public health repercussions of response actions."[155] In order to issue a public health response, officials need more intelligence; unfortunately, the BioWatch Program alone cannot offer the certainty needed to make definitive decisions or to request resources such as the strategic national stockpile.[156] This uncertainty is evident to the Centers for Disease Control and Prevention (CDC); before sending strategic national stockpile resources, the CDC requires a secondary analysis with a subsequent positive test for the agent indicated by the BioWatch sample.[157]

It is important to note that the BioWatch Program was created to detect the physical presence of select agents. The system cannot determine the origin, the intent, or the scope of the agent's existence, or whether the agent is transmissible to humans. The BioWatch Program does successfully detect the presence of select biological agents, but it does not go far enough to truly improve situational awareness.[158] Public health decision makers do not need to know how the agent was introduced, but it is vital to know whether it occurred naturally or from nefarious action. In some instances (e.g., anthrax), time is of the essence; the longer decision makers wait for confirmation from the CDC, the greater the risk to the U.S. population. Adding more intelligence collection methods for public health practitioners not only assists the decision-making process, but may ultimately save American lives.

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[154] Maron.

[155] A high-regret situation can be the result of taking action to warn the public, ordering medical countermeasures, or following a BioWatch Actionable Result when it may not be warranted. This means that there may be a high level of anxiety among the public, inducing stress that may not have been needed. Larsen et al., *Jump Start*.

[156] Larsen et al.

[157] David Willman, "The Biodefender That Cries Wolf," *Los Angeles Times*, July 8, 2012, http://articles.latimes.com/2012/jul/08/nation/la-na-biowatch-20120708.

[158] Willman.

2. Syndromic Surveillance

Syndromic surveillance is a method for monitoring disease among a population. These systems are used at the local, state, and federal levels of government with the goal of providing early detection of a covert bioterrorism attack. People have fallen ill can be tracked in the syndromic surveillance system based upon behavioral patterns, symptoms, signs, and eventually findings from laboratory tests.[159] For example, if a nefarious action involving a Category A agent, such as Anthrax, is carried out, the system has the ability to detect a surge event of influenza-like symptomology.[160] These systems also track a wide range of reportable diseases, which allows health departments to identify potential outbreaks.[161] However, syndromic surveillance has limitations. Not all health departments and hospitals participate in syndromic surveillance programs, and urgent care centers and physician offices are often unaware of syndromic surveillance systems available through the state. Furthermore, if all medical service entities used syndromic surveillance, it may still be difficult to detect an outbreak. Flu-like symptoms occur in many infectious diseases that come from viral, bacterial, fungal, and protozoan sources; these could be easily confused for an anthrax-related bioterrorism event.

3. CDC's Situational Awareness Branch

The CDC's Office of Public Health Preparedness and Response has a designated division, known as the situational awareness branch, that works to optimize situational awareness during public health emergencies. This specialized team collects, validates, analyzes, interprets, and synthesizes critical information for key decision makers at the CDC who ensure the health and wellbeing of all Americans.[162] In 2014, the situational awareness branch created Red Sky, a cloud-based software that allows users to access real-

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[159] Kenneth D. Mandl et al., "Implementing Syndromic Surveillance: A Practical Guide Informed by the Early Experience," *JAMIA* 11, no. 2 (2004): 143–4, http://doi.org/10.1197/jamia.M1356.

[160] Certain biological agents are categorized by their infectivity and mortality rates. Category A agents are biological agents that have the highest threat of transmission and mortality.

[161] Reportable diseases vary state by state. The CDC has an established list of diseases that must be reported, but some states may choose to add additional illnesses to the list.

[162] "Situation Awareness," CDC, March 3, 2017. https://www.cdc.gov/phpr/sa-branch.htm.

time information during emergency situations.[163] Red Sky was named after an old adage: "Red sky at night, sailor's delight. Red sky in the morning, sailor's take warning."[164] Red Sky's dashboard interface graphically displays public health events on a global map, with specific colors to denote the severity of an event.[165] When the user selects an event, the interface displays information general information and give the user the opportunity to access more in-depth information.[166] This software was made specifically for the CDC; the information within Red Sky is loaded into the software by personnel at the CDC's emergency operations center (EOC). EOC staff obtain this data from both internal and external sources.[167] Although Red Sky is CDC-centric, the previous director, Dr. Thomas Friedan, had aspirations to share this software with partner organizations such as the World Health Organization.[168] Unfortunately, many stakeholders at the local and state levels may not be aware of this CDC capability, or they may be unable to gain access to it.

4. BioPHusion

BioPHusion is a CDC project that was launched in 2008 with the intent to integrate and further disseminate data gained from biosurveillance across the country.[169] The purpose of BioPHusion was, and still is, to apply the concept of fusion centers within the public health sector to create BioPHusion centers for biosurveillance.[170] BioPHusion's inputs include CDC programs and open-source material from outside the agency. BioPHusion produces and disseminates a daily situational awareness report pertaining to infectious disease and natural disasters that is read by the CDC's director, division directors

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163 CDC.

164 Lexi Sowers, "Red Sky: New Tool for Health Threats," CDC, May 8, 2014, www.cdc.gov/phpr/science/documents/Red-Sky-New-Tool-for-Health-Threats-6272014.pdf.

165 Sowers.

166 Sowers.

167 Sowers.

168 Sowers.

169 Ali S. Khan et al., "The Next Public Health Revolution: Public Health Information Fusion and Social Networks," *American Journal of Public Health* 100, no. 7 (July 2010): 1238, http://doi.org/10.2105/AJPH.2009.180489.

170 Khan et al., 1238.

and branch chiefs, and select external partners. This information is shared with other federal partners with the goal of creating an online platform to share information in a timely manner.[171]

The BioPHusion program "was intended to specifically allow for alert verification and dissemination by routinely collecting, monitoring, and synthesizing disparate kinds of health information into actionable knowledge in order to support public health action."[172] This, hypothetically, would improve situational awareness and provide the knowledge key decision makers need—but not just for those in the public health community. Agencies such as DHS could utilize this data for their project purposes (e.g., BioWatch) as well. Khan et al. stated:

> Enhancing early detection of, rapid response to, and effective management of potentially catastrophic infectious disease outbreaks and other public health emergencies will require a bottom-up knowledge-management approach that synthesizes information within global, federal, state, territorial, tribal, and local programs. This concept of multidirectional information flow would rely heavily on the creation of new electronic social networks for knowledge management.[173]

As the model in Figure 1 indicates, intelligence is submitted through multiple stakeholders to the federal BioPHusion center, with the goal of attaining better "situational awareness" and a "common operating picture."[174]

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171 Institute of Medicine and National Research Council, *BioWatch and Public Health Surveillance: Evaluating Systems for the Early Detection of Biological Threats: Abbreviated Version* (Washington, DC: National Academies Press, 2010), 133, https://doi.org/10.17226/12688.

172 Khan et al., "The Next Public Health Revolution," 1239.

173 Khan et al., 1239.

174 Khan et al., 1239.

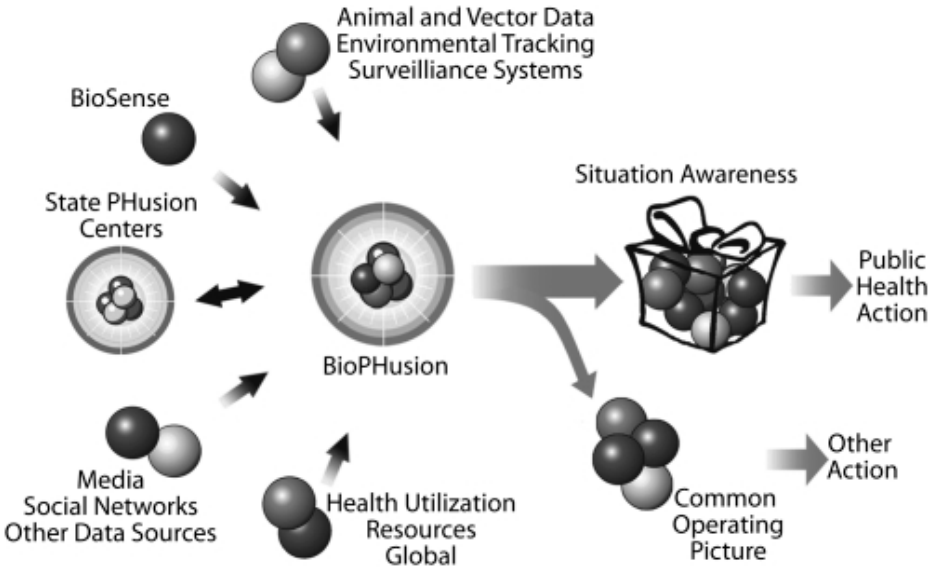

Figure 1. BioPHusion Information-Gathering and Sharing Process[175]

A search for "BioPHusion" on the CDC's website yields just six search results; the majority of the documents only briefly mention the program. However, in minutes from a meeting held August 5–6, 2008, it was stated that "the concept of BioPHusion was a priority of the CDC director, who created an Office of Critical Information Integration and Exchange (OCIIX) to start a BioPHusion program" and "the BioPHusion center is bringing information together in such a way that one does not have to review twelve sets of slides or twelve pdf documents in order to figure out what is needed."[176]

Much like the traditional fusion center, the BioPHusion concept, which utilizes the fusion center concept for public health purposes, does not provide information to local and state health departments. It relies mostly only publicly available information from various media outlets, much the same way that public health practitioners already gather information.[177] Therefore, the BioPHusion program finds itself in the need for more

[175] Source: Kahn et al.

[176] CDC, "Coordinating Office for Terrorism Preparedness and Emergency Response (COTPER) Board of Scientific Counselors (BSC) Summary Report" (report, Department of Health and Human Services, 2008), 13, https://www.cdc.gov/maso/FACM/pdfs/BSCCOTPER/2008080506_Minutes.pdf.

[177] Henry Rolka, Jean C. O'Connor, and David Walker, "Public Health Information Fusion for Situation Awareness," in *Biosurveillance and Biosecurity*, 1–9 (Berlin: Springer, 2008), 2, https://doi.org/10.1007/978-3-540-89746-0_1.

information such as monitoring programs for environmental and vector purposes, police records, vital records laboratories and medical records.[178] Carter et al. notes that BioPHusion "served as a robust source of health information, but it lacked the analytic capacity to synthesize this amount of information and communicate relevant information in a digestible and actionable format (e.g., an intelligence product)."[179]

In Figure 1, there is nothing mentioned about sharing information from BioPHusion with local or state public health entities. This bottom-up approach makes BioPHusion similar to the situational awareness branch; it is mainly a federal function and it is not providing actionable intelligence to state or local governments.

5. Fusion Center Terrorism Liaison Officer (TLO) Program

Fusion centers also incorporate the Fusion Center Terrorism Liaison Officer (TLO) program.[180] Public health practitioners can utilize this liaison program to receive unclassified information, but is not always timely or helpful, especially during a crisis. In many instances, information shared through this program has already been reported by local media before the fusion center releases the information to its liaisons. Additionally, this information-sharing program has a one-way information flow; it does not allow public health practitioners to share information if they are not members of a fusion center.

E. PROBLEM STATEMENT

During public health emergencies, decision makers need more intelligence to determine if an event is actionable. In the business community, actionable intelligence refers to "any intelligence that can be used to boost a company's strategic position against industry peers. The acquired intelligence must be transferred into real actions which can

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178 Rolka, O'Connor, and Walker, 2.

179 Jeremy G. Carter and Michael Rip, "Homeland Security and Public Health: A Critical Integration," *Criminal Justice Policy Review* 24, no. 5 (September 1, 2013): 31, https://doi.org/10.1177/0887403412452425.

180 Some fusion centers use different terminology to refer to this program, such as SFO, Intelligence Liaison Officer (ILO), or Fusion Center Liaison Officer (FLO).

be used to either launch a preemptive strike or prepare a counter strategy."[181] For the purpose of this thesis, actionable intelligence for public health is defined as any intelligence that can be used to build the public health community's level of situational awareness regarding any developing or present health threat. Intelligence procured by other disciplines must be considered to launch preemptive action, prepare a strategy for countermeasures, or perhaps inform the decision to take no action and continue to gather data. Additional intelligence will help decide whether an event is actionable or whether it is occurring naturally.

BioWatch provides the clearest example of the need for additional intelligence. The BioWatch system in Denver provided accurate information on the presence of a pathogen, tularemia, but that presence alone did not necessitate a response; additional information was needed to judge whether or not the positive result required action.[182] These false alarms, especially when they recur, may establish a sense of complacency. Additionally, as Eric Toner with the Center for Health Security found in 2009, large outbreaks of a mild disease can go undetected by health surveillance systems like syndromic surveillance and BioPHusion.[183] This means important public health intelligence may go unnoticed.

When an emergency strikes, public health leaders often rely on local news agencies for information. According to Lenart et al., public health agencies are often left to "validate, extract, and subsequently define the critical elements of information provided in official government communiques in the context of their response duties during an emergency."[184]

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[181] There is no definition for actionable intelligence in the public health realm. Business Dictionary, s.v. "What Is Actionable Intelligence? Definition and Meaning," accessed March 29, 2017, www.businessdictionary.com/definition/actionable-intelligence.html.

[182] Rabbits are one of several reservoirs for tularemia, and they can transmit tularemia to humans via direct contact. Humans can also be infected through aerosolized tularemia; aerosol infections occurred in the Cape Cod region after a lawn maintenance worker ran over a field of dead rabbits with a lawn tractor, resulting in a great amount of aerosolized tularemia that infected residents. Lise E. Nigrovic and Sarah L. Wingerter, "Tularemia," *Infectious Disease Clinics of North America* 22, no. 3 (September 2008): ix, http://doi.org/10.1016/j.idc.2008.03.004; Katherine A. Feldman et al., "An Outbreak of Primary Pneumonic Tularemia on Martha's Vineyard," *New England Journal of Medicine* 345, no. 22 (November 29, 2001): 1602, http://doi.org/10.1056/NEJMoa011374.

[183] Toner, "Creating Situational Awareness."

[184] Lenart et al., "Integrating Public Health into Homeland Security," 175.

This process produces suboptimal results and increases the chance for human error.[185] The BioWatch program fulfills its purpose, but it does not provide actionable intelligence. To increase the flow of quality intelligence that improves situational awareness and public health decision making, public health practitioner and fusion center integration should be improved around the country.

In 2007, James Morrissey surveyed 22 fusion centers, 12 of which had established collaborations with the public health sector.[186] However, the public health positions offered in these 12 fusion centers were mostly "minimal," with only one full-time position.[187] Today, about 10 years after Morrissey's research, it is unknown how often, and to what extent, public health practitioners are involved in fusion centers nationally. A formal system is needed to ensure that the proper public health practitioners are receiving relevant threat information. The lack of a current system does not mean that those in public health do not seek information. Public health agents do seek information; but without a system in place, this information usually comes from informal intelligence sources (news media or social media) rather than formal sources (fusion centers, local law enforcement, and federal law enforcement).

Notably, the benefits of improving collaboration between the public health sector and fusion centers and JTTFs are not one-sided. Public health practitioners can act as subject-matter experts in fusion centers, especially for WMD threats such as chemical, biological, and radiological events.[188] To gain a better understanding of the current level of public health integration within fusion centers and JTTFs, surveys were sent to leaders from public health agencies, JTTFs, and fusion centers. The following chapters discuss the survey methodology and results.

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185 Lenart et al., 175.

186 Morrissey, "Integration of Medical and Health Representation," 27.

187 Morrissey, 27.

188 Adam Bulava, "Fusion Centers & Public Health Agencies: Unlikely or Natural Partners?" *Domestic Preparedness*, August 26, 2009, https://www.domesticpreparedness.com/preparedness/fusion-centers-public-health-agencies-unlikely-or-natural-partners/.

III. METHODS

This thesis research used content analysis to determine the extent of public health sector integration within fusion centers and JTTFs, the level of integration, and future plans for collaboration. Max Weber first suggested the idea of content analysis, stating that it should include: media content (radio, television, mass media communication), thematic analysis, and quantitative argumentation quantitative analysis.[189] Today, content analysis has taken on a more quantitative meaning.[190] While qualitative analysis encompasses communication science, hermeneutics, social research, literary studies, and psychology of processing texts, qualitative text analysis is "a form of analysis in which understanding and interpretation of the text play a far larger role than in classical content analysis."[191] Chapters I and II of this thesis, for example, contain qualitative text analysis.

To collect data for this thesis, the researcher sent three separate, but closely related, surveys to fusion centers, JTTFs, and public health departments; the survey questions can found in Appendices A, B, and C. The fusion center survey asked 14–22 questions, depending on how the respondent answered each question. The JTTF survey contained 19 questions, and the public health survey contained 43 questions. The surveys were built on the Naval Postgraduate School's Lime Survey tool and administered online.[192] They were conducted under Naval Postgraduate School Institutional Review Board supervision starting September 9, 2017, and ending on December 21, 2017.[193]

The intent of the surveys was to gather data regarding public health integration within fusion centers and JTTFs. Using the Center for Homeland Defense and Security's (CHDS) alumni directory, 41 potential respondents were selected to receive a personalized

189 Udo Kuckartz, *Qualitative Text Analysis: A Guide to Methods, Practice and Using Software* (Thousand Oaks, CA: SAGE, 2014), 29–30.

190 Kuckartz, 30.

191 Kuckartz, 33.

192 All data was kept secure on Naval Postgraduate School/Department of Defense servers.

193 The Institutional Review Board gave the project an exempt status, indicating no human subjects research.

email inviting them to participate in the fusion center survey. These individuals were selected based upon their listed occupation and/or their participation in CHDS's fusion center leaders program. Additionally, the survey was sent to all 77 fusion centers using the national fusion center distribution list. Of the 77, 23 responded: a response rate of 29.87 percent.

The JTTF-specific survey was distributed to 15 FBI WMD coordinators across the country who participate in local JTTFs. The researcher contacted an FBI agent, who obtained permission to disseminate the survey among select JTTFs from FBI headquarters in Washington, DC. Only three of the 15 JTTFs responded (a 20-percent response rate).

The public health–specific survey was sent to 24 public health stakeholders across the country who were selected from the CHDS alumni directory, or from contacts the researcher made at professional conferences. When the professional contacts were solicited, they were informed that the survey was voluntary. CHDS alumni received a personalized email. A total of 16 people responded to the survey, a 66.67-percent response rate.

IV. RESULTS

The surveys provided significant qualitative data, as well as some quantitative data, that offer insight into the current integration of public health considerations within fusion centers and JTTFs, and help explain barriers to collaboration. It should be noted that data was sorted before it was coded: Fusion centers (FCs) that had public health integration were assigned codes FC01–FC04. Fusion centers that did not have public health integration were coded as FC05–FC23. Similarly, local public health agencies (LPHAs) were coded as PH01–PH09 and state health departments as PH10–PH16. Complete responses to each survey can be found in Appendices D, E, and F. A summary of the data is provided in this chapter.

A. FUSION CENTER SURVEY

Of the 23 respondents to the fusion center survey, 17 represented state fusion centers and six represented local fusion centers. Four of the represented fusion centers (FC01, FC02, FC03, and FC04) had public health representatives—two were state fusion centers and two local fusion centers. FC01 had nine part-time public health representatives (three epidemiologists, three animal health subject-matter experts, two physicians, and one health preparedness planner). FC02 had one full-time public health representative (a fusion center analyst). FC03 had one part-time public health representative (a nurse). FC04 had one part-time public health representative as well (a public health emergency planner). All of these representatives had a security clearance procured by their fusion center.

Fusion centers were asked about the process for integrating public health representatives into the center. The level of commitment from FC01 is particularly encouraging; however, it should be noted that FC01 is home to one biosafety level (BSL) laboratory, and the center plans to add another BSL laboratory in the near future.[194] It is therefore unsurprising that FC01 focuses on biological and agricultural threats. The level

[194] Biosafety laboratories test various biological and viral agents that require certain precautions for researchers. Depending on the agent being studied, researchers are required to wear personal protective equipment that varies from gloves to hazardous material suits with positive pressure.

of commitment to public health was not the same with FC02, FC03, and FC04. FC02's public health representative was a statewide asset who was appointed for a heroin response initiative; as the respondent from FC02 mentioned, this representative provides only "information on drug overdoses and emergency room admissions related to opioids." It is therefore unknown how skilled this individual is in terms of public health preparedness or public health in general. FC04 candidly discussed how difficult it is to incorporate public health representatives into the fusion center's daily operations, citing funding problems and issues obtaining a security clearance for the public health representative.

When asked to describe the process for integrating public health information provided from their public health representative, the FC04 respondent stated that they did not "have a need for any products." The FC04 respondent also indicated that they had not experienced any benefits from public health integration, nor did they ever have reason to call upon the expertise of their public health representative. The FC02 respondent maintained the narrative pertaining to drug overdoses and opioid-related issues. When asked what steps are being taken to improve public health and fusion center integration, the FC01 and FC03 respondents discussed their plans in detail, but the FC03 respondent mostly spoke of issues pertaining to the medical community, not public health. The FC02 and FC04r respondents indicated that they had no plans to improve integration between public health agencies and their fusion center.

A total of 19 fusion centers, or 82.61 percent of those surveyed, indicated that they did not have a dedicated public health representative. Of these, 15 (78.95 percent) were at the state level of government while four (21.05 percent) were at the local level of government. Seventeen of the 19 fusion centers have discussed the inclusion of public health representatives, and 18 said that they value public health integration. The FC18 respondent indicated that fusion center staff had discussed the inclusion of public health practitioners, but also indicated that they do not value public health integration. Of the 18 that do value this integration, only four indicated that they have implemented

recommendations from the health security appendix published by the DOJ in 2011.[195] A total of 14 fusion centers indicated that they have included public health in their TLO programs, while five have not. Additionally, the FC18 respondent discussed the inclusion of public health, but said the fusion center does not value public health integration, despite including a public health representative in its TLO program. The FC20 respondent said the fusion center has never discussed the inclusion of public health; while FC20 does value public health integration, public health is not a part of its TLO/ program.

When asked about information sharing between public health agencies and fusion centers, fusion centers generally mentioned that information flows out, instead of public health information coming into the fusion center. The FC05 respondent stated, "The state fusion center does have an information sharing relationship with the primary state health officer who does provide valuable health and epidemiological information to our fusion center. However, this is not a formal relationship and information sharing/alerts is sporadic." FC09 has a public health/hospital representative that developed a suspicious activity reporting (SAR) card that is carried by hospital staff, but it is unknown if the individual is privy to public health department meetings; the representative may therefore not be properly prepared to be a public health contact. Other fusion centers receive or share information "as needed," "sporadically," or during big public health incidents such as the Zika, Ebola, or chikungunya outbreaks. Despite not having formal relationships with public health practitioners, 13 fusion centers indicated that their process of sharing and receiving information with public health works well. Six fusion centers indicated that they are working to improve their information-sharing process with the public health sectors.

Fusion centers were also asked if they were making an effort to improve public health collaboration. Five fusion centers indicated that they are working to improve this integration through a variety of methods, including improving criteria for health-related information sharing, obtaining security clearances, increasing health outreach to county health officials, and attempting to create a full-time public health analyst position. For

[195] Of the four that indicated they have implemented a portion of the capabilities, to include public health, three were state fusion centers and one was a local fusion center.

instance, FC05 recognizes operational issues and is working to eliminate the hurdles between public health agencies and fusion centers. The FC07 respondent indicated that the fusion center is trying to incorporate a part-time public health presence, an idea that came to fruition "several years ago." However, in the same response, the FC07 respondent stated that a public health practitioner was assigned to the fusion center, but "for reasons never really explained, that person stopped coming and the partnership dissolved." FC23 at one time had a full-time epidemiologist, but, after that individual retired, a replacement was never hired. Three fusion centers specifically named the lack of funding and resources as the main reasons why public health is not a function of their daily operations.

Of the 19 fusion centers with no public health representatives, 17 indicated that they still receive public health information through informal channels, personal contacts, and publicly available information.[196] A total of 17 centers also reported that their process to obtain public health information works well, while nine stated that they intend to improve this process. The FC18 respondent mentioned that the fusion center's process for obtaining public health information does not work well, and that the center seemingly does not intend to make improvements.

When asked what has prevented public health integration, the fusion centers had varied responses. Some reasons included politics, clearance access, public health not being a part of the fusion center's scope, and leadership not recognizing the benefits of public health integration. The two most frequently mentioned barriers to integration were lack of resources and funding (mentioned by seven centers), and the public health sector's disinterest in collaboration (mentioned by six centers). The FC06 respondent stated:

> The fusion center has reached out to various healthcare and public health sector partners on numerous occasions, offering them access and a workspace within the fusion center. To date, there has been reluctance on the part of our health sector partners to "physically" place any of their personnel in the fusion center—even on a temporary basis. The question really should be, "What has prevented the healthcare and public health sector from integrating with state and local fusion centers?"

[196] Publicly available information refers to information that can be found online. For instance, FC06 receives weekly emails from the *Journal of the American Medical Association* and *Lancet*.

All of the fusion centers reported that they share information about public health threats through the creation of bulletins and for official use only (FOUO) products, and that this information is shared to a wide array of stakeholders via email. Six of the 19 fusion centers stated that there is no time delay in sending out information, while the rest said some information is delayed if it needs to be vetted, or if it is not urgent in nature. However, when asked if the information being sent was required to be declassified, seven fusion centers said yes and 12 said no, which does not accurately reflect previous responses.[197]

B. JTTF SURVEY

While only three representatives from JTTFs responded to the survey, they provided some interesting observations. The JTTF2 respondent indicated that a public health representative serves on the task force—a public health emergency planner who holds a security clearance obtained by the JTTF. However, in a qualitative response, the JTTF2 respondent indicated that the public health representative does not actually "sit on the JTTF," but is someone who simply shares information with the JTTF's WMD coordinator. Regardless, JTTF2 has experienced benefits from this public health emergency planner and has called upon this person's expertise; the WMD coordinator who communicates with this public health representative is usually the JTTF's decision maker on matters of public health emergencies when it comes to documentation, distribution of information, and a decision to conduct further analysis/investigation is needed. JTTF2 suggests that, depending on the nature of the event, information "has the potential to be shared with public health related entities, JTTF partners, FBI headquarters, and other state/federal partners deemed appropriate." JTTF2 indicated that it does not need any special permissions to release information to public health officials, but it must be declassified before it is released.

JTTF1 and JTTF3 do not have public health representatives, but JTTF1 has discussed the potential of public health inclusion. Both indicated that they value public health integration and still procure public health information through their WMD

197 It is recognized that the survey was long, and may have caused fatigue or confusion among respondents.

coordinator and other liaison efforts. Both indicated that this process works well; JTTF1 has plans to improve this process, but JTTF3 does not. When asked how the organization is trying to improve collaboration with public health, JTTF1 indicated that the task force has discussed adding public health to the JTTF, while JTTF3, much like JTTF2, has obtained clearances for public health subject-matter experts. When asked about barriers to integration, JTTF3 stated, "most JTTFs do not have non-sworn law enforcement personnel on the JTTF as official task force members." In regards to sharing information about public health emergencies, JTTF1 and JTTF3 indicated that they first try to determine if there is a nexus to terrorism, and that information may be shared depending on the situation. This information could be shared with FBI headquarters, other JTTFs, organizations that comprise the JTTF, and local law enforcement agencies; information sharing occurs via email and briefing. Depending on the situation, there may be a time delay. JTTF1 and JTTF3 indicated that they do not need any special permission to release information to public health, but it must first be declassified.

C. PUBLIC HEALTH SURVEY

1. Local Public Health Agencies (LPHAs)

None of the nine LPHAs surveyed had representatives in either fusion centers or JTTFs, but they all indicated that they would be interested in working with fusion centers. Only one, PH03, actually reached out to a fusion center; however, a subsequent survey answer from the PH03 respondent suggested that the agency has never specifically discussed collaboration with the fusion center.

When asked how their agencies are working to improve fusion center integration, the survey results show no true common theme. Some LPHA representatives mentioned that they are working to become members of a fusion center TLO, or are working with fusion centers at regional meetings, but that they are often too understaffed to prioritize this work. Three LPHAs asserted that they depend on the state health department's relationship with the fusion center. However, one LPHA asserted that the state health department does not pass relevant information on to local government agencies. Three LPHAs indicated that their fusion center has contacted them in the past regarding public

health threats. Additionally, fusion centers have asked LPHAs for information on topics such as "cyber and healthcare," communicable disease issues, and highly infectious diseases, as well as information pertaining to special events.

Six of the nine LPHA survey respondents indicated that they would be interested in working with JTTFs, but none of them have contacted their local JTTF. When asked how LPHAs are working to improve JTTF integration, seven LPHA respondents indicated that there are no current efforts, while one mentioned that the state health department is working with the JTTF; the respondent commented, "I think it is incumbent upon fusion centers to do a better job sharing info that is relevant to [public health]; we have had specific meetings on this topic." It is important to note that the respondent mentioned fusion centers, rather than JTTFs, as prompted by the survey question. This may indicate confusion about the difference between fusion centers and JTTFs.[198] Two of the nine LPHAs indicated that their local JTTF had contacted the health agency regarding issues of bioterrorism, response planning, situational awareness of public health issues, and special events.

LPHAs indicated that their threat information comes from state health departments; communicable disease information programs such as ESSENCE, HSIN, and BioWatch; and fusion center TLO programs. The respondent from PH05 suggested that information sharing at the state level is improving, but information sharing between state agencies and LPHAs is not. Five LPHAs indicated that their process to obtain threat information functions well, but only two have exercised these processes. When asked what is being done to improve how the health agency receives threat information, four of the nine respondents indicated that there are no current plans for improvement.

2. State Public Health Agencies

Of the seven state health agencies that responded to the survey, four have representatives in a fusion center, with only PH11 indicating that its representatives have security clearances. However, one of the remaining three, PH15, indicated that its

[198] This response also, however, could have been caused by survey fatigue.

representative is obtaining a clearance and will eventually be trained as a fusion center analyst. Beyond these actions, the state health agencies that have representatives in fusion centers are not taking steps toward improving their current level of integration. Three state health agencies have experienced benefits from their relationships with fusion centers; these three also indicated that the fusion center has contacted the agency to request public health expertise. With the exception of PH15, the state public health agencies that have representatives in the fusion center indicated that they are not working to improve integration.

Similar to LPHAs, state public health agencies that do not have fusion center representation do have an interest in working with fusion centers, but only one has actually contacted the fusion center to initiate collaboration. The PH16 respondent indicated that the health agency has contacted the fusion center, but the fusion center decided not to include the agency in its operations. Additionally, two agencies indicated that they are taking steps to strengthen relationships with their state fusion centers; these efforts have centered on working relationships. The PH12 respondent stated that the fusion center contacted the agency for information regarding public health, such as bioterrorism, disaster planning, and clinical threat assessments, but that the two entities have not established formal relationships.

Two state health departments, PH12 and PH16, indicated that they serve on the JTTF, with their representatives serving as departmental director and public health preparedness leadership, and both attend JTTF meetings. Only one of the respondents, from PH12, indicated that its representative hold a security clearance, which was obtained through DHS. PH12 has experienced benefits from its partnership with the JTTF, and both PH12 and PH16 indicated that their JTTF had contacted the agency to seek public health expertise.

Out of the five state health agencies that do not have JTTF representation, four indicated that the agency has no interest in working with the local JTTF. One, however, PH14, has contacted the JTTF; but, later in the survey, the PH14 respondent's answers suggest this contact may have actually been with a fusion center. The PH15 representative demonstrated an understanding of JTTFs and provided insight into how the health agency

works with its local JTTF indirectly. Three state health agency representatives indicated they hvae no plans to improve or establish relationships with JTTFs, with one stating, "[I] have limited experience with JTTFs and don't know who or how to get engaged with them." Similar to the results from the JTTF survey, the PH15 respondent stated that the agency's planner works with the JTTF, "as far as info flow, but is not able to be on the JTTF due to not being a post-certified LE official." The JTTF has contacted PH15 regarding suspicious powders/packages and the BioWatch program.

State health agencies receive threat information from a myriad of sources, such as their state emergency management agency, the Department of Health and Human Services, fusion center TLO programs, the FBI, CDC, ASPR, DHS, federal counterparts, and county emergency managers. Four of the seven state health agencies indicated that their process for obtaining threat information does not work well, but only two have tested the related methods in exercises. When asked what steps are being taken to improve how state health departments receive threat information, four indicated either "none" or "none that I know of." The PH12 representative said that that the agency is improving procedures through the "continuous evaluation of both exercise and real-world events through after-action reports and corrective actions," as well as "active networking with colleagues and partners." The PH14 respondent cited improvements to existing technology and the PH15 respondent mentioned that the agency is working to "identify federal partners and state agencies that they can work with."

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V. DISCUSSION

The survey results in the previous chapter point to several themes, which are discussed in this chapter. These themes include the level of public health inclusion in fusion centers and JTTFs, information sharing between entities, and a common misunderstanding of the roles of public health agencies, fusion centers, and JTTFs. Despite confusion surrounding these entities' roles in the homeland security enterprise, they are generally willing to work together; they share a belief that their collaboration would be beneficial, though they lack the ability to establish formal collaboration.

A. AN APPRAISAL OF PUBLIC HEALTH INCLUSION

The public health sector has very little inclusion in the surveyed fusion centers. While four of the 23 fusion centers, two at the local level and two at the state level, indicated that they have public health representation, the actual number appears to be much lower—only one. FC01 is an outlier given the amount of public health integration with its fusion center, but this is not coincidence. The fusion center location is also home to a Biosafety Level III laboratory, and plans to open a Biosafety Level IV laboratory in the future.[199] It is questionable, however, if FC02, FC03, and FC04 have a true public health component:

- The FC02 respondent mentioned a public health analyst who is a part of the fusion center's heroin response initiative, and whose main focus is collecting information on drug overdoses and emergency room admissions related to opioids. There was no mention of public health functions related to communicable diseases, highly infectious diseases, emergency preparedness, or bioterrorism.

- The FC03 respondent indicated that the fusion center has a "medical liaison officer" (MLO); the officer is a registered nurse with fire and law

[199] Biosafety Level III laboratories work with microbes that can result in serious health complications or even death when workers are exposed via the inhalation route (such as tularemia). Biosafety Level IV laboratories work with agents such as Ebola and the Marburg virus.

enforcement experience who is assigned to the fusion center's critical infrastructure unit. When asked how the fusion center integrates public health information, the FC03 respondent indicated that they obtain "medical/health" intelligence from county public health agencies, emergency medical services (EMS) agencies, local hospitals, emergency/disaster planners, and security managers. Additionally, this MLO is working closely with acute care facilities and medical transportation providers. While public health practitioners may work with EMS and hospitals, this is not a primary function of public health practitioners. The FC03 respondent appears to misunderstand the scope of public health.

- FC04 obtained a six-month grant to bring on a public health representative; the fusion center is fortunate that this individual had a security clearance, as DHS was not interested in providing the clearance for a six-month assignment. Given the short time period of this employee's stay, it would be a mistake to consider the employee a true public health representative. Additionally, FC04 does not value public health integration. The respondent said the fusion center has found no added benefit and has "not used any of [the public health representative's] products." This raises the question: What is the scope of the products that the fusion center produces? Additionally, according to the FC04 respondent, the function of this public health representative is to prepare public health awareness bulletins for local health providers. Given these two statements, it is clear that there is no true integration between the public health representative and the fusion center; the representative simply disseminates information from the fusion center. Local health providers are typically physicians, nurse practitioners, or physician assistants. While public health agencies may work with people in these occupations, they are not considered public health practitioners in the homeland security enterprise.

Despite potentially misunderstanding the definition or scope of public health, FC03 has established connections with individuals in the community and the homeland security enterprise (efforts with emergency management, hospital safety and security, and emergency planning meetings). While FC02 and FC04 have integration, they may need to readdress the type of public health information they want to use. With that said, FC02 and FC04 do not have plans to improve public health integration within their fusion centers.

Five fusion centers not only do not have public health representatives on either a part- or full-time basis, they also do not have public health practitioners in their TLO programs. It appears that these five fusion centers do not have any contact with public health officials; it is unclear how they would operate during a public health emergency. This should be a concern for all disciplines in the homeland security enterprise that work in the same areas as these five fusion centers.

The other 14 fusion centers indicated that their TLO programs include public health, but, given the responses, the real purpose of the TLO programs may be to simply generate a list of public health contacts to use during emergencies. Only four of these fusion centers, for example, indicated that they have implemented the public health baseline capabilities released by the DOJ in 2011; this is an interesting finding considering a large number of the respondents indicated that they value public health.[200] There could be many reasons for this contradiction, such as funding, leadership issues, political issues, or even simple unawareness of the DOJ capabilities.

When asked about the flow of public health information, the respondents from FC05 through FC23 described a myriad of processes, but all seemed to surround a central idea: information flows from the fusion center out to its partners, but little public health information flows *into* the fusion center. Additionally, when it comes to the distribution of public health information, there appears to be no established distribution criteria to describe who receives this information. Most of the time, this information is shared via email.

[200] Of the four that indicated that they have implemented a portion of the capabilities, to include public health, three were state fusion centers and one was from a local fusion center.

In summary, only one fusion center (though possible two) has any type of official public health integration. Efforts are being made to communicate to outside partners, including those in the public health sector, but no public health information is being communicated systematically. Therefore, after more than 15 years of discussion and official documentation, information-sharing problems with fusion centers persist on a large scale. However, these problems also present opportunities for improvement. All of the fusion center survey respondents indicated they have a desire to work with public health representatives.

B. ALTERNATE MEANS OF INCLUSION AND INFORMATION SHARING

While information sharing between fusion centers and public health agencies may not be robust or regular, FC05 highlighted how a fusion center can create collaborative relationships even if a public health contact does not have an official role in the fusion center. In efforts to obtain information, FC05 has contacted individuals at the state public health agency. A total of 13 fusion centers indicated that their process for sharing and receiving information with public health works well, and six said they are working to improve the process. Based on the written responses, it is suspected that a number of fusion centers are using informal networks, personal relationships, and other workarounds to share information. Surely, information sharing would be much smoother and more consistent if formal relationships were established.

C. EXPEDITING INFORMATION DISSEMINATION

An unexpected finding is that not every fusion center surveyed is a 24/7 operation; some are not open over the weekend and may be closed for holidays, impacting their ability to stay up to date. This means that the local media often disseminates information faster than the fusion center does. For example, an official county vehicle was stolen on January 10, 2018, and recovered the next day, January 11. The fusion center sent an email alerting the region to the stolen vehicle on January 11, but the follow-up email announcing that the vehicle had been repainted and recovered was not sent until January 16. The vehicle's recovery was reported in the local paper on January 13. It is important to note that none of this information was classified; stolen cars are a matter of public record. Local media

reported both the theft and the recovery, and the fusion center reported the recovery three days later. It is likely that the process for sharing classified information would take even longer, since it would need to be declassified in order to be sent via email.

If a fusion center is alerted to a potential public health threat and an analyst is unable to review this information in a timely manner, even having an established relationship may with the public health sector may not be beneficial. Timely intelligence is often required to mitigate the impact of a public health—or any other type of—emergency.

D. THE DIFFERENCE BETWEEN PUBLIC HEALTH AND MEDICAL SERVICES

Many fusion center representatives who responded to the surveys did not truly understand what public health entails. The respondents frequently mentioned EMS, hospitals, and fire departments in their qualitative comments, which is supported by a lack of reciprocal awareness between public health and law enforcement agencies in general. The FC03 respondent stated, "The MLO is a registered nurse hired under contract to work in the fusion center. The current MLO has 40+ years of nursing, fire and law enforcement experience working in the fusion center's area of responsibility." Fire and law enforcement experience does not necessarily translate to public health experience. Furthermore, the idea that public health is represented by the nursing profession is antiquated.[201] FC02's public health liaison works mainly with the opioid crisis, and FC04's is mostly interested in sharing products with healthcare partners. In fact, most of the surveyed fusion center representatives mentioned sharing information with healthcare partners—but this discussion occurred in questions specific to public health, and not all disciplines within the homeland security enterprise. Public health is linked to medicine, but the root of public health is the recognition and understanding of how environmental factors and socioeconomic factors influence the health populations, not just individuals. During bioterrorism or pandemic events, the public health sector's role is to disseminate medical countermeasures, not physicians. While hospitals and doctors play a role in this, public

[201] The master of public health degree has become the gold standard of education for the public health profession.

health agencies coordinate this response. It is important for all disciplines in the homeland security enterprise to recognize the role that the public health sector plays in protecting the homeland; public health cannot be seen as having the same role as medicine.

E. BARRIERS TO INCLUSION

Judging from some of the responses, it appears that several fusion centers worked with public health representatives in the past, but currently do not. Some have attempted to gain a public health representative, but public health agencies failed to appoint one. Three responses from fusion centers shared this narrative. For instance, as mentioned in the previous chapter, FC06 did attempt to obtain a public health representative, but faced "reluctance on the part of … health sector partners." FC07 made arrangements to incorporate a public health representative. The center provided the space and paid for the clearance process, but the "public health agency/person dropped off the radar." In fact, of the 19 fusion centers that do not have public health representation, seven indicated that the public health agency seemed disinterested or were unable to provide personnel. In addition to personnel/manpower issues, another major hurdle is funding and resources—four of the fusion centers cited these as primary reasons why public health representation is not included in the fusion center. While it is difficult to confidently say that funding is the primary barrier, it is likely the causal factor.

A few fusion centers, like FC01, have established great partnerships and integration with public health agencies, while the majority have little or no integration. Barriers to integration appear to be related to funding or public health agency unwillingness, which may also be due to budgetary issues; budgetary issues were cited twice as collaboration barriers in surveys completed by public health practitioners.

F. PUBLIC HEALTH INCLUSION IN JTTFS

Given the survey results, it is clear that the JTTFs value the public health sector and the intelligence it can offer. However, it may be difficult for public health practitioners to find a seat at the JTTF table because they are not a sworn law enforcement officers. The surveys show that the JTTFs are using an informal social network to work around potential JTTF membership requirements to gain a better understanding of public health

information. It may be beneficial to open the JTTF to other disciplines within the homeland security enterprise.

When comparing the JTTF and fusion center surveys, it is apparent that JTTFs have more autonomy to decide which information they share. Unlike fusion centers, JTTFs do not have to acquire special permission to release information. However, this probably is not an issue because the majority of their members, if not all, hold a security clearance. Additionally, JTTFs do not offer a TLO program that facilitates communication with individuals from other disciplines within the homeland security enterprise. However, if they choose to release information to individuals who do not serve on the JTTF, this information would need to be declassified. This concern was unanimous across the three JTTF respondents and quite different when compared to the answers from fusion centers.

G. LOCAL PUBLIC HEALTH AGENCIES

1. Involvement

The LPHAs that responded to the survey are not involved in either fusion centers or JTTFs. While it is not surprising that there is no JTTF involvement (since JTTF membership is typically reserved for sworn law enforcement officers), it is surprising that none of the local health agencies have representatives in fusion centers. This may be becauase the majority of fusion centers are state fusion centers (50 of them—with the other 27 being local fusion centers) and state fusion centers are more likely to partner with other state agencies. It is surprising that these LPHAs are not on the distribution list for state fusion centers. However, as one LPHA pointed out, the relationship between a fusion center and public health in the state tends to be between the state fusion center and the state health department. Unfortunately, it appears that the state health department is not sharing information from fusion centers with the LPHAs.

2. Information Sharing

Despite having no representation in fusion centers or JTTFs, some public health agencies have found ways to circumvent the informational barrier. Two of the LPHAs surveyed are working to add staff to the TLO program. Some local health departments

receive communications directly from the state fusion center. For instance, the PH05 respondent stated, “The state department of public health is collaborating with the Fusion Center, but that has not occurred locally.” While none of the LPHAs have formal relationships with fusion centers, three indicated that fusion centers have reached out to them to inquire about a public health issue. The topics varied, to include public health preparedness, communicable diseases, and special event planning. Additionally, the PH07 respondent stated, “We make an effort to stay informed through regular contact with members of the JTTF.”

3. LPHA Interest in JTTFs

Much like fusion centers, local health agencies seem interested in working with their local JTTFs, but none have actually inquired about a potential partnership. More importantly, it is clear from the written survey responses that there is much confusion about the differences between fusion centers and JTTFs. There is little LPHA action to change the status quo; one LPHA indicated it stays informed through a regular contact with the JTTF, but that contact is not an official representative serving on the JTTF.

While JTTFs and public health agencies value each other, public health agencies seem unaware that the purpose of a JTTF differs from the purpose of a fusion center. For collaboration to be successful, both must be aware of each other’s mission. Moreover, for true inclusion to occur, JTTFs must allow individuals who are not sworn law enforcement officers to sit on the JTTF. The counterterrorism mission incorporates more than the law enforcement discipline.

4. Information Sources

When asked how they receive threat information, LPHAs indicated that they rely on syndromic surveillance, state public health departments, BioWatch, emergency management agencies, and regional coalitions. Most of them feel that their processes work well. However, as mentioned in Chapter II, these programs do not provide an adequate level of situational awareness. When asked how LPHAs are working to improve the flow of threat information, they frequently mentioned that they form and leverage partnerships with individuals from other agencies.

5. Barriers to Integration

One public health agency stated that its fusion center was only interested in collaboration if the agency could provide a full-time representative. The PH06 respondent stated, "The fusion center is open to having public health within the FC, but full time. This is a difficult position, as you know [public health] preparedness has been understaffed and we cannot give up a staff [member] full time. The discussion is now surrounding can three or four staff split the time … this will not generate the relationship needed to maintain good conversations." This is often the case, as the relationships at the personnel level among four staff members will be difficult to develop and some may not develop at all. These personnel relationships directly impact the relationship between a public health agency and a fusion center or law enforcement agency.

The PH06 respondent also mentioned being understaffed, and this is fundamentally a budget issue. LPHAs did not mention that budget issues are a significant barrier to integration with fusion centers, but fusion centers repeatedly mentioned budgetary issues and a lack of funding as integration barriers. Two of the nine LPHAs indicated that they are not taking steps to improve this integration; this may be due to fears of public perception, budgetary issues, or other unknown factors.

H. STATE PUBLIC HEALTH AGENCIES

1. Involvement

Four state health agencies indicated that they have representatives in fusion centers, but only one of them indicated that this representative holds a security clearance. It is unclear whether or not the respondents understand the concept of fusion centers and how representatives are required to hold at least a Secret clearance. Additionally, while the PH11 respondent indicated that the agency has a representative at the fusion center, the respondent later stated, "The fusion center has primarily just created a linkage between the intelligence community and the public health agency ('knowing who to call when you have a question' kind of thing)." Additionally, it appears that, although the PH15 respondent identified an individual as a fusion center representative, this individual may not be fully

integrated—the employee is still in the process of obtaining a clearance, which is required before the fusion center can train the employee as an analyst.

Two state health agencies indicated that they serve on the JTTF, and it is encouraging to see JTTFs open up their rosters to the public health community. The two that serve on a JTTF are a departmental director and a public health preparedness director. However, it was suggested that the preparedness director did not have a clearance, which puts the relationship in question; a JTTF would not allow a public health planner without a security clearance to sit on the task force.

2. Information Sharing

Some state public health agencies have been able to work around the barriers of security clearances and discipline. The PH15 respondent stated, "Our [public health] planner works with the JTTF, as far as info flow, but it is not able to be on the JTTF, due to not being a post-certified LE official." Additionally, PH12 and PH16 are working on building relationships and collaborations with fusion centers, despite not having a fusion center representative. Most state public health agencies mentioned trying to improve relationships with other agencies at the local, state, and federal level to facilitate information flow and maintain a quality level of awareness. However, it is unknown if these efforts have been successful or will be in the future.

3. Information Sources

Receiving timely and relevant threat information is vital for public health and public health preparedness. State agencies indicated that they received their data from a myriad of sources, such as state emergency management agencies, the Department of Health and Human Services, the CDC, and other federal agencies. The seven state health departments pointed to at least 19 specific sources of information, while also mentioning non-specific sources such as "federal partners." Perhaps a fusion center partnership could simplify the information flow for health departments.

4. Commonalities between State and Local Public Health Agencies

A common theme between LPHA and state public health agencies is an informal social network that utilizes existing partnerships in an attempt to forge new relationships. While networking is always important when dealing with public health emergencies, formal relationships will better facilitate information sharing and break down silos. Both survey groups were also unable to differentiate fusion centers from JTTFs. Finally, it appears that there are numerous mainstream inputs for public health intelligence; this raises the question: is the cumulative power of these inputs actually helpful?

I. CROSS-CUTTING ISSUES

1. Decrease in Integration

When compared to a survey conducted 10 years ago, the results of this survey reveal a decrease in collaboration between public health agencies and the other branches of the homeland security enterprise. Of the 23 surveyed fusion centers, only four, about 17 percent, indicated that they have a public health representative. Keep in mind, however, that only one respondent had a true element of public health integration—just 4.34 percent. Comparatively, a survey conducted in 2007 found that eight of 20 fusion centers, or 40 percent, had public health representation.[202] Morrissey's research defined this individual as a "medical/health" representative and did not restrict it to just the public health profession.[203] However, 17.39 percent is a significant decrease from 40 percent during a 10-year period, especially considering that the DOJ was publishing products to help increase integration between fusion centers and public health agencies during this time.

Only one of the three JTTFs that responded to the survey indicated it has a public health representative, but that individual does not actually serve on the JTTF. Three of the eight JTTFs surveyed for Morrissey's research had a "health representative."[204] Again,

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[202] There are a number of extraneous factors. Fusion centers were still in their infancy in 2007 and the majority of fusion centers were in high-priority states and urban areas. Additionally, since 2007, funding has dramatically decreased. Morrissey, "Integration of Medical and Health Representation."

[203] A medical/health professional may be someone in public health, EMS, or medicine.

[204] Morrisey, "Integration of Medical and Health Representation," 30.

this is a marked decrease in the interactions between public health agencies and JTTFs since 2007.

While public health practitioners believe there are benefits to integration with JTTFs and fusion centers, many public health departments fail to make the first move toward integration. Much like they do in their profession, they should be proactive in establishing these relationships and information channels. This will not only help them prepare for an emergency, but will enhance their situational awareness during events.

2. Funding Issues

Funding is being reduced, and in some cases removed, for most disciplines in the homeland security enterprise, making collaboration that much more difficult. An underlying theme among the fusion center and public health survey is lack of funding, manpower, and resources. The federal government has been reducing federal funds for fusion centers, leaving the state and local governments to cover the tab. This limits agencies' ability to hire more analysts and/or public health representatives. Along with this funding loss is the inability to pay for the costly security clearance that each analyst must possess. According to a 2014 *Washington Post* article, a security clearance can cost almost $4,000 per person.[205]

The same can be said for the public health sector. In 2002, Congress passed the Public Health Security and Bioterrorism Preparedness and Response Act, which allotted $1 billion for the Public Health Emergency Preparedness Program (PHEP).[206] The program funds all 50 states, eight territories, and four jurisdictions (Chicago, Los Angeles, New York City, and Washington, DC). In 2017, the program received only $660 million.

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[205] Brian Fung, "5.1 Million Americans Have Security Clearances. That's More than the Entire Population of Norway," *Washington Post*, March 24, 2014, sec. The Switch, www.washingtonpost.com/news/the-switch/wp/2014/03/24/5-1-million-americans-have-security-clearances-thats-more-than-the-entire-population-of-norway/.

[206] Bhavini Murthy et al., "Progress in Public Health Emergency Preparedness—United States, 2001–2016." *American Journal of Public Health* 107, no. Suppl 2 (September 2017): S180, https://doi.org/10.2105/AJPH.2017.304038.

Funding for fusion centers is facing a similar battle as well. A November 2017 report indicated that, since 2008, the grants that fund fusion centers have been decreasing.[207] The State Homeland Security Grant Program (SHSGP) has decreased by 52 percent and Urban Area Security Initiative (UASI) funds have decreased by 30 percent. The vast majority of fusion centers depend on these funding opportunities to pay for training and analysts' salaries.[208] Additionally, some areas have witnessed their UASI funds go away, causing one fusion center to eliminate 75 percent of its staff.[209]

3. Difficulties Understanding Other Components of the Homeland Security Enterprise

The surveys conducted for this thesis show a lack of reciprocal awareness surrounding public health and law enforcement, and this may be common among all agencies in the homeland security enterprise. While public health is related to healthcare, it is quite different in both subject matter and approach. For instance, public health is population based while medicine treats the individual. When asked about the process to obtain public health information, the FC09 respondent stated, "We have a Fire/EMS rep in the center that helps with PH issues." This is a prime example of how the field of public health tends to be misunderstood throughout the homeland security enterprise.

In the same fashion, public health officials are not clear on what a fusion center is, what a JTTF is, and how they are different. As previously mentioned, public health respondents who were asked about JTTFs continued to discuss fusion centers in their answers. This is most likely a consequence of information silos. Unfortunately, this will most likely continue until there are grant requirements and/or additional funding to facilitate collaboration.

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[207] Homeland Security Committee, "Advancing the Homeland Security Information Sharing Environment: A Review of the National Network of Fusion Centers" (majority staff report, House Homeland Security Committee, 2017), 10, https://www.hsdl.org/?view&did=805450.

[208] Homeland Security Committee, 10.

[209] Homeland Security Committee, 10.

4. Information Sharing

Numerous survey respondents had issues with information sharing, at least as far as understanding what can and cannot be shared based upon clearances, classification levels, and Health Insurance Portability and Accounting Act (HIPAA) requirements. While the surveys indicated a strong interest in collaboration, public health agencies most likely do not consider information sharing a primary focus of their mission. Additionally, public health agencies may be hesitant to partner with law enforcement agencies due to a fear that their clients may not continue to seek care if their backgrounds include criminal activity or an illegal immigration status. Notably, public health practitioners are often unaware of the scope of HIPAA law and cite HIPAA as a reason why they are unable to share information with law enforcement. Many public health practitioners, medical professionals, and even law enforcement officers believe that HIPAA is basically a privacy rule that protects the confidentiality of Americans' health information. HIPAA was created to govern the disclosure of medical information. According to the Department of Health and Human services, law enforcement may obtain protected health information from a HIPAA-covered entity (e.g., hospitals, public health agencies, etc.) without the individual's consent during numerous instances, including, "an instance of whether the information may be able to prevent or lessen a serious and imminent threat to the health or safety of an individual or the public."[210]

J. SUMMARY

The three surveys document poor integration between public health agencies and law enforcement functions (fusion centers and JTTFs) that play a role in the homeland security enterprise. There is not one specific causal reason for the poor integration. The parties appear to be willing to work together, but there but there is no forward momentum to make these desires a reality. In fact, the surveys document a decline over time rather than an improvement. Funding and staffing issues seem to be the limiting factor for

[210] "Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule: A Guide for Law Enforcement, " Department of Health and Human Services, accessed January 23, 2018, www.hhs.gov/sites/default/files/ocr/privacy/hipaa/understanding/special/emergency/final_hipaa_guide_law_enforcement.pdf.

integration. Using the themes discussed in this chapter, solutions and recommendations, such as funding programs and operational solutions, are proposed in the next chapter.

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VI. RECOMMENDATIONS

The survey results and research indicate that government stakeholders value integration of the public health sector within fusion centers. Although it is unclear if similar integration is valued within JTTFs, the three survey responses from JTTF representatives show that the task forces do value the public health skillset and understand how it can be beneficial to the counterterrorism discussion. However, fusion centers and JTFFs are hesitant to include non-sworn officials in their daily activities, and public health practitioners are likewise reluctant to work with fusion centers and JTTFs due to budget and staffing issues, or concerns about violating HIPAA. These issues have resulted in poor uniformity nationwide, with varied levels of public health integration, little collaboration, poor public health integration in daily law enforcement operations and, ultimately, a lack of information sharing between disciplines in the homeland security enterprise.

A. POLICY SOLUTIONS

The survey responses from fusion center representatives point to methods for including public health considerations in the law enforcement intelligence realm. Using these results as well as other research, policy proposals are outlined in this section.

1. Policy Option One: Maintaining the Status Quo

One policy option is to maintain the status quo—to keep current conditions the same. Maintaining the status quo will produce no national uniformity (between the DOJ, fusion centers, and JTTFs), resulting in varied levels of public health integration. For example, one JTTF survey respondent mentioned that the task force already works around the rules of who is allowed to serve on the JTTF. The task force obtained a clearance for a public health representative and passed information to this designated person on an ad-hoc basis. Working around barriers is a great way to address information sharing, but there is no way to ensure that every JTTF and fusion center around the country is doing this.

Maintaining the status quo means that fusion centers will continue to pursue some level of partnerships using SAR training and TLO programs. Financially, this is the most feasible option because there are no additional costs.[211] However, without establishing and strengthening formal relationships between these disciplines, there is still a significant likelihood that public health leaders would not be able to receive important intelligence in a timely manner during public health emergencies. This is especially problematic because fusion center and JTTF leaders have no formal responsibility to share information with public health agencies; during a state of emergency, it is therefore unlikely to happen. The entire information-sharing process will be at the discretion of leadership, making this policy option highly subjective, with unpredictable results.

2. Policy Option Two: Remove JTTF and Fusion Center Sworn Officer Requirement Nationwide

As discussed in the previous chapter, a major hurdle for public health practitioners' involvement in fusion centers and JTTFs is the requirement that representatives must be sworn law enforcement officers. Admittedly, many fusion centers may not require analysts to be sworn officers, but several have cited this as a reason why public health practitioners have not been included in their daily operations. However, this *is* the primary reason that public health practitioners cannot sit on a JTTF. Removing this requirement for JTTFs would provide an opportunity for other disciplines in the homeland security enterprise to participate in counterterrorism operations and remain abreast of threats at the local level. Removing this requirement creates an easier avenue for public health practitioner involvement, but funding is needed to procure security clearances and to pay for personnel. Without these additional funds, this program is likely to be only marginally successful.

[211] With exception of the example in which the JTTF procured a security clearance for a designated public health official.

3. Policy Option Three: Have Regional Planners Act as Liaisons

Several states—Missouri, for instance, as discussed previously—have established regional public health emergency planners who cover the Cities Readiness Initiative (CRI) region in a metropolitan statistical area (MSA). The CRI is federally funded program administered by the CDC, implemented to heighten preparedness in the largest U.S. population areas. Sixty percent of the nation's population resides in a CRI region.[212]

This regional role establishes unity and collaboration across the CRI region, and the representative is in constant communication with public practitioners across the region. Collaboration across an MSA could be achieved by utilizing the regional public health emergency planner to serve, at least part time, in a fusion center, and by allowing the planner to sit on the JTTF. Individuals in these roles are familiar with the Incident Command System and classified/restricted information requirements. Additionally, they have the education and skillset to serve as a public health subject-matter expert. There are 72 CRI regions in the country, including the four directly funded regions of Chicago, Los Angeles, New York, and Washington, DC. This policy option would require additional funding to procure the security clearance and provide personnel costs in states that do not have regional public health emergency planners for their designated CRI regions. Given the regional scope of this position, the planner will be able to provide regional public health intelligence briefings to the fusion center and to the JTTF. Additionally, in the public health surveys, two LPHAs expressed that information does not flow well from the state health department. Utilizing this regional role could serve as another benefit to information-sharing protocols between the state health department and the LPHAs in the CRI region, as visualized in Figure 2.

[212] It is important to note that the scope of CRI is vaster than the BioWatch program. For instance, not every CRI region has a BioWatch program. For more information on BioWatch, refer to Chapter II.

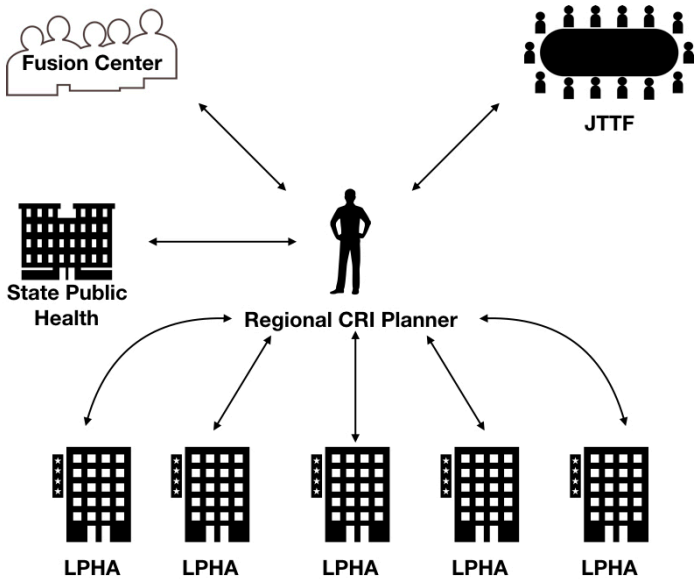

Figure 2. Policy Option Three: Regional Planners as Liaisons

The CDC grant funds for CRI operations—which come from the PHEP Cooperative agreement—will need to increase to accommodate this solution, as representatives will need to be hired for all CRI regions.[213]

4. Policy Option Four: Include Full-Time Public Health Representatives in Fusion Centers

Fusion centers and public health agency survey respondents indicated that having part-time responsibilities spread among multiple public health practitioners is not ideal for fusion center operations. Instead, a single subject-matter expert that serves as the public health liaison would be of greater value to the fusion center. This may be the costliest solution, but it also may be the most effective one. Costs would include the annual amount of salary and fringe benefits for the full-time representative, in addition to the cost of the security clearance and subsequent renewals.[214] Because these costs will most likely

[213] In fiscal year 2016, the PHEP budget was $616,419,032 and the 2016 CRI amount was $47,900,025, which is 7.77 percent of the total PHEP budget.

[214] Top Secret clearances cost significantly more than Secret clearances. Additionally, Top Secret clearances must be renewed after five years, while secret clearances are renewed every ten years. "Security Clearance Q&A," Department of State, accessed March 2, 2018. https://www.state.gov/m/ds/clearances/c10977.htm.

increase over time, it is important to consider long-term budgeting issues to determine the practicality of this policy option.[215] Additionally, to fully implement policy option four, policy option five will also need to be implemented.

5. Policy Option Five: Replenish Grant Funds

The fusion center and public health survey respondents indicated that funding and resources are integration obstacles. As previously mentioned, PHEP was once a billion-dollar program. In 2017, however, program funding dropped to half the original amount, leaving many state and local public health departments unequipped with the supplies and personnel needed to respond to emergencies. Most, if not all, fusion centers relied upon SHSGP and UASI funding to cover operational expenses. However, SHSGP and UASI both contain less than half of their original amounts, while operating costs have increased. Increasing the PHEP, SHSGP, and UASI grant amounts will create an opportunity to fund full-time or part-time public health representatives in fusion centers around the country. Additionally, federal agencies such as the Department of Health and Human Services, DHS, and the DOJ should work together to create a pathway that allows funding, perhaps in a cost-sharing arrangement, to be used to procure clearances and to pay for personnel costs at fusion centers.

B. RECOMMENDATION

Policy option one is not recommended because it does not provide a pathway for public health and law enforcement integration at a national level; instead, policy options two through five are recommended.[216] For JTTFs, the major hurdles are allowing non-sworn members to sit on the task force and funding the cost of the security clearance. Removing the sworn-officer requirement and proving federal funds for security clearances would facilitate legitimate public health practitioner integration within JTTFs. However, these policy options do face limitations.

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[215] Salary will be based upon education, experience, and skillsets. Additionally, inflation is often accounted for partially through an annual cost of living raise.

[216] It should be noted that options three and four are dependent upon option five.

It was not until 2011 that the DOJ released guidance for including public health representatives in law enforcement operations; three years later, however, federal grant funding for fusion centers started to decrease. The PHEP fund, too, has been decreasing since its inception in 2002, eliminating the funding options necessary to initiative policy option three.

In addition to these policy recommendations, efforts must be made to educate public health practitioners and law enforcement agents about their respective roles in the homeland security enterprise. Several public health survey respondents seemed unable to differentiate between fusion centers and JTTFs. Additionally, some fusion center respondents seemed to equate public health considerations to medical capacities; while their missions are similar, they have different scopes. Once homeland security stakeholders understand each other's roles, it will be easier for them to integrate and work together.

C. SUGGESTIONS FOR FUTURE RESEARCH

Nationally, there have been some successful partnerships between public health and law enforcement agencies. However, more research and work are required to fully implement the DOJ's 2009 goal. This large-scale work may be difficult, but it will be helpful to the country's counterterrorism mission. The protection of the homeland and its citizens is incomplete without considering the ramifications of public health emergencies; this thesis offers a pathway to ensure the public health stays informed, and that it can efficiently share information across the homeland security enterprise. Much remains to be researched, evaluated, and implemented; future researchers will be exploring a field of public health that is still emerging, and hopefully this research will help break down silos among all disciplines in the homeland security enterprise.

Future research, for example, could examine fusion centers that are currently satisfied with their public health partnerships, identify common themes, and share these best practices with fusion centers across the country. Additionally, it could be beneficial to research the possibility of incentivizing this type of integration in the homeland security enterprise. This research should examine the benefits, consequences, and feasibility of an incentive plan.

The intelligence community is implementing a new environment to share information, powered by software—the Intelligence Community Desktop Environment (ICDTE). ICDTE allows information sharing across all agencies within the intelligence community and can serve as an example of how information sharing improves the common operating picture for all parties. While this example is primarily related to technology, there is a common theme of information sharing that may be applicable to networking between public health entities and fusion centers and JTTFs. Future research could examine how applications such as ICDTE could be use at the local and state levels of government to keep intelligence stakeholders abreast of the latest information. This could provide an opportunity for a public health practitioner to share information with his or her fusion center through secure channels without being in the fusion center. This could potentially create less resistance to incorporating public health representatives in fusion centers due to staffing limitations or limited office space in fusion centers.

An improved survey dissemination and response rate for the JTTF and public health surveys would have expanded the reach of the survey, thus potentially providing more information. While the response rates of the surveys distributed for this thesis were not insignificant, it is hard to draw conclusions from small samples. Additionally, an omission was made on the public health and JTTF surveys. Fusion centers were asked, "What has prevented the fusion center from integrating with public health?" A similar question should have been asked on the JTTF survey, and on the public health survey regarding fusion centers and JTTFs.

Information silos exist across all levels of government and prevent horizontal information sharing between agencies.[217] This, in turn, impacts the preparedness and response of each agency. In an attempt to mitigate silos, numerous government agencies have adopted policies and strategies that allow them to participate in information sharing pertaining to issues of drug trafficking, human trafficking, immigration, and terrorism. This was a major reason for the initiation of fusion centers, but as the nation's homeland security

[217] Information silos exist in systems (e.g., government) that do not allow information to be shared among parties. All data must be reported to the top, where leadership decides what information is released to each party.

enterprise has matured and expanded, it is clear that the methods of information sharing and the people involved in this integration must mature as well. However, many challenges lie ahead pertaining to information sharing between law enforcement and other disciplines in the homeland security enterprise, including the public health discipline. Research regarding the creation and implementation of protocols would be greatly beneficial so that homeland security leaders can use evidence-based methods to facilitate information sharing across the country.

VII. CONCLUSION

This thesis aimed to illuminate the current level of integration between the public health and law enforcement sectors by measuring public health practitioners' inclusion in fusion centers and JTTFs. Additionally, the thesis proposed methods for improving collaboration across the United States. The data from the literature and surveys indicate that fusion centers and JTTFs wish to collaborate with public health agencies. Published DOJ guidance has recommended including various disciplines in the homeland security enterprise. This guidance provides information on how to facilitate public health integration, but the majority of fusion centers have not implemented any of these capabilities.

The surveys revealed that some local and state fusion centers do currently work with public health officials; representatives from these fusion centers reported that they value this public health contribution. Establishing and fostering collaboration between disciplines is considered a prerequisite for emergency response. Nationally, fusion centers must be reminded of or informed about the benefits that a public health representative would bring to their operations. This was the intent of the DOJ's baseline capabilities, but a large portion of survey respondents indicated that they had not implemented these capabilities.

While fusion centers are independent and determine their own level of involvement with the public health community, including incentives for incorporating other disciplines may increase integration. Once a partnership is established, both parties will need to agree to training requirements, the proper credentials, and commitment level (full time, part time, or ad hoc). The policy options and recommendation in the previous chapter provide a course toward collaboration for public health, fusion centers, and JTTF leaders. The inclusion of public health expertise will increase law enforcement's ability to respond to all-hazards events; some fusion centers, like FC01, have already had great success incorporating the public health discipline. It would be ideal for the DOJ to examine the fusion centers that have quality public health partnerships and use their methods as best practices in a refreshed version of the 2008 fusion center guidance and 2011 health security

appendix. JTTFs seem interested in the inclusion of public health practitioners; one JTTF member, upon hearing about the premise of this thesis, mentioned it was a great idea and wondered why nobody had thought of this concept before 2017.

The public health issues over the past 15 years serve as a reminder to both the public health and the law enforcement communities. Ebola, Zika, Chikungunya, H1N1, seasonal influenza, the anthrax letters, and the emerging discipline of gene editing are all public health factors that contribute to threats to the homeland's security. Improving information sharing through collaborative efforts is the first step toward improving situational awareness and decision-making processes for public health leadership. The health implications of WMDs, too, are catastrophic. The faster public health practitioners are aware of an issue, the faster they can respond to mitigate the impact.

APPENDIX A. FUSION CENTER SURVEY QUESTIONS

- Is the fusion center at the state or local level?
  - State
  - Local
- Does the fusion center currently have a dedicated public health representative (e.g., someone assigned to the fusion center on a part-time or full time basis)?
  - If YES
    - How many public health representatives are assigned to the organization?
    - What kind of public health practitioner is the public health representative? (Physician, Nurse, Public Health Emergency Planner, Departmental Director, Other: Please Specify)?
    - Are they full-time or part time?
    - Does the public health representative have a security clearance?
      - If yes, what type of security clearance do they hold?
        - Secret
        - Top Secret
      - If yes, which organization procured the clearance?
    - Did the public health representative receive any training to work with your organization?
      - If so, what type of training?
    - Has the fusion center experienced any benefits from its public health integration?
    - Has the fusion center had cause to call on the public health expertise provided by its public health representative?
    - Describe the process for integrating the public health representative?
    - Describe the process for integrating public health information provided by its public health representative?
    - What steps (if any) is your fusion center taking to improve public health and fusion center integration?
  - If NO
    - Has your fusion center discussed the inclusion of public health?
    - Does your fusion center value public health integration?
      - If so, has the fusion center adopted any of the public health baseline capabilities established by the United States Department of Justice?
    - Does the fusion center have a public health representative as part of the liaison program (TLO/ILO) but not assigned to the fusion center?
      - If So…
        - How often does the fusion center receive/share intelligence information with them?
        - Does this process work well?
        - Are there any plans to revise this process to improve it?

            - What steps (if any) is the fusion center taking to improve public health collaboration?
        - Does the fusion center have public health representatives, but they chose not to participate?
        - If the organization does not have a public health representative, does your organization still procure public health information?
        - What is the process to obtain public health information?
        - Does the process work well?
        - Are there any plans to revise this process to improve it?
        - What has prevented the fusion center from integration with public health?

- What does the organization do with information regarding a potential public health threat?
    - With whom is this information shared?
        - Specific agencies or individuals?
    - How is this information shared?
    - Is there a time delay in sharing this information?
    - Are special permissions required to release this information?
    - Is the information required to be declassified?

- OPTIONAL: Which fusion center do you represent?

APPENDIX B. JTTF SURVEY QUESTIONS

- Does the JTTF currently have a dedicated public health representative (e.g., someone assigned to the fusion center on a part-time or full time basis)?
    - If YES
        - How many public health representatives are assigned to the JTTF?
        - What kind of public health practitioner is the public health representative? (Physician, Nurse, Public Health Emergency Planner, Departmental Director, Other: Please Specify)?
        - Are they full-time or part time?
        - Does the public health representative have a security clearance?
            - If Yes, what type of security clearance do they hold?
                - Secret
                - Top Secret
            - If yes, which organization procured the clearance?
        - Did the public health representative receive any training to work with your JTTF?
            - If so, what type of training?
        - Has the JTTF experienced any benefits from its public health integration?
        - Has the JTTF had cause to call on the public health expertise provided by its public health representative?
        - Describe the process for integrating its public health representative?
        - Describe the process for integrating public health information provided by its public health representative?
        - What steps (if any) is your JTTF taking to improve public health and fusion center integration?
    - If NO
        - Has the JTTF ever discussed the inclusion of public health?
        - Does the JTTF value public health integration?
        - Has the JTTF invited public health representatives, but they chose not to participate?
        - If the organization does not have a public health representative, does your organization still procure public health information? If yes,
            - What is the process to obtain public health information?
            - Does the process work well?
            - Are there any plans to revise this process to improve it?
        - What steps is your organization taking to improve public health collaboration?
        - Is there anything else that has prevented the JTTF from integration with public health?

- What does the JTTF with information regarding a potential public health threat?
    - With whom is this information shared?
        - Specific agencies or individuals?
    - How does the JTTF share this information?
    - Is there a time delay in sharing this information?
    - Does the JTTF require special permission to release this information?
    - Is the information required to be declassified?
- OPTIONAL: Which JTTF do you represent?

APPENDIX C. PUBLIC HEALTH SURVEY QUESTIONS

Potential Questions for Public Health Leadership

- At what level of government is your organization?
  - Local
  - State
  - Federal
- Does your department have representatives in fusion centers or the local JTTF?
  - If YES
    - How many public health representatives work in the fusion center?
      - Do these individuals work full time in their role with the fusion center?
      - What roles do these representatives hold within the the public health agency? (Physician, Nurse, Public Health Emergency Planner, Departmental Director, Other: Please Specify)
      - Do any of these public health representatives hold a security clearance?
        - If yes, what type of security clearance do they hold?
          - Secret
          - Top Secret
        - If yes, which organization procured the clearance?
      - Have any of the public health representatives received any training to work with a fusion center?
        - If so, what type of training?
      - Has public health experienced any benefits from its fusion center integration?
      - Has public health been asked by the fusion center to provide public health expertise?
      - Has the public health representative(s) expressed any challenges integrating the fusion center?
      - What steps (if any) is your department taking to improve public health and fusion center integration?

    - How many public health representatives work in the local JTTF?
      - Do these individuals work full time in their role with the JTTF?
      - What roles do these representatives hold within the public health agency? (Physician, Nurse, Public Health Emergency Planner, Departmental Director, Other: Please Specify)
      - Do any of these public health representatives hold a security clearance?

        - If yes, what type of security clearance do they hold?
            - Secret
            - Top Secret
        - If yes, which organization procured the clearance?
    - Have any of the public health representatives received any training to work with a JTTF?
        - If so, what type of training?
    - Has public health experienced any benefits from its JTTF integration?
    - Has public health been asked by the JTTF to provide public health expertise?
    - Has the public health representative(s) expressed any challenges integrating JTTF?
    - What steps (if any) is the department taking to improve public health and JTTF integration?

- If NO
    - Have you and your team discussed collaboration with fusion centers?
    - Have you and your team discussed collaboration with JTTFs?
    - Is there an interest to work with Fusion Centers?
    - Is there an interest to work with JTTFs?
    - Has public health contacted fusion centers, but they decided to not include public health?
    - Has public health contacted JTTF, but they decided to not include public health?
    - What steps (if any) is your department taking to improve public health and fusion center integration?
    - What steps (if any) is your department taking to improve public health and JTTF integration?
    - Does the fusion center ever contact you for information regarding public health?
        - Regarding public health threats?
        - Regarding bioterrorism?
        - Regarding response planning?
        - At all?
        - If the response was yes to any of the questions above, what specific information do the Fusion Centers typically request?
    - Does the JTTF ever contact you for information regarding public health?
        - Regarding public health threats?
        - Regarding bioterrorism?
        - Regarding response planning?
        - At all?

        - If the response was yes to any of the questions above, what specific information do JTTFs typically request?

- How does public health receive threat information?
    - Does the department feel that the process to obtain intelligence about credible threats work well?
    - Has this process been tested by the department in exercise situations?
    - What steps (if any) is the department taking to improve how it receives threat information?
- OPTIONAL: Which public health agency do you represent?

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APPENDIX D. FUSION CENTER SURVEY RESULTS

Q1: Is the fusion Center at the state or local Level?

FC01: State
FC02: State
FC03: Local
FC04: Local
FC05: State
FC06: State
FC07: State
FC08: Local
FC09: Local
FC10: Local
FC11: State
FC12: State
FC13: State
FC14: State
FC15: State
FC16: State
FC17: Local
FC18: State
FC19: State
FC20: State
FC21: State
FC22: State
FC23: State

State: 17 (73.91%)
Local: 6 (26.09%)

Q2: Does the fusion center currently have a dedicated public health representative (e.g., someone assigned to the fusion center on a part-time or full-time basis)?

FC01: Yes
FC02: Yes
FC03: Yes
FC04: Yes
FC05: No
FC06: No
FC07: No
FC08: No
FC09: No
FC10: No
FC11: No
FC12: No
FC13: No
FC14: No
FC15: No
FC16: No
FC17: No
FC18: No
FC19: No
FC20: No
FC21: No
FC22: No
FC23: No

No = 19 (82.61%)
Yes = 4 - 2 local and 2 State (17.39%)

The following set of questions apply to those that have public health representatives in their fusion centers. Questions from those that do not have public health representatives start on page five.

Q3: How many public health representatives are assigned to the organization?

FC01: 9
FC02: 1
FC03: 1
FC04: 1

Q4: What kind of public health practitioner is the public health representative?

FC01: Three Epidemiologists, Three Animal Health Subject Matter Experts, Two Physicians, One Public Health Preparedness Planner
FC02: Analyst
FC03: Nurse
FC04: Public Health Emergency Planner

Q5: Are they full-time or part-time?

FC01: part-time
FC02: full-time
FC03: part-time
FC04: part-time

Q6: Does the public health representative have a security clearance?

FC01: Yes
FC02: Yes
FC03: Yes
FC04: Yes

Q7: If the public health representative has a security clearance, which organization procured the clearance (Fusion Center or Public Health Agency)?

FC01: Fusion Center
FC02: Fusion Center
FC03: Fusion Center
FC04: Fusion Center

Q8: Did the public health representative receive any training to work with the fusion center?

FC01: Yes
FC02: No
FC03: Yes
FC04: No

Q9: If so, what type of training?

FC01: All participants receive annual Intelligence Oversight training. Some members have received specific intelligence training.
FC02: N/A
FC03: Basic Intelligence and Threat Analysis Course
FC04: N/A

Q10: Has the fusion center experienced any benefits from its public health integration?

FC01: Yes
FC02: Yes
FC03: Yes
FC04: No

Q11: Has the fusion center had cause to call on the public health expertise provided by its public health representative?

FC01: Yes
FC02: Yes
FC03: Yes
FC04: No

Q12: Describe the process for integrating the public health representative into the fusion center.

FC01: One of our three focus areas is Biological and Agricultural threats. As such, we have developed our Bio and Ag Threat Team. This teams consists of about 20 [subject-matter experts] ranging from Epidemiologists, to medical doctors, animal health experts, etc. Each team member has a TS/SCI clearance facilitated through the Fusion Center but with a variety of sponsoring agencies (primarily DHS and FBI).

The team meets once a month. The Fusion Center analysts provide the content of the briefing/discussion for the meeting and the Bio Team then discusses, asks questions, analyzes, and provides expert input related to the intelligence information. The team participants, in many cases, are not just local experts, but

national and sometimes world-wide experts in their respective fields. This subject matter expertise matched with otherwise unavailable intelligence information provides tremendous value not only to state policy makers, but also the federal Intelligence Community. The Bio Team has provided input to multiple classified intelligence reports (both IIRs and finished products) as well as unclassified bulletins that are produced on a bi-monthly basis. The team has also directly influenced policy decisions at the state level. They are able to do this due to the unique nature of our Fusion Center construct. That is, we as the Fusion Center provide the relevant intelligence information, and they as the subject matter experts provide unique and valuable insight regarding the subjects in focus.

FC02: The position is a public health analyst assigned to fusion centers as part of the heroin response initiative.

FC03: The representative is classified as an analyst with the title of Medical Liaison Officer. The MLO is assigned to the Critical Infrastructure Unit.

The MLO is a registered nurse hired under contract to work in the fusion center. The current MLO has 40+ years of nursing, fire and law enforcement experience working in the fusion center's area of responsibility.

FC04: Our process was actually pretty difficult and remains difficult. The position is grant funded. Half of the grant is funded by Homeland Security and the other half by the health department. Another problem was the health reps security clearance. Since his grant is only for 6 months, the Homeland Security Department doesn't see any value in obtaining and paying for the background investigation for the security clearance. The health rep has a clearance from a prior position. That complicated a lot of admin procedures. The health rep has a desk within the fusion center outer office. He is responsible mainly for developing public health awareness bulletins for local health providers.

Q13: Describe the process for integrating public health information provided by its public health representative.

FCO1: I believe this is addressed in the previous question but feel free to reach out if something needs clarified.

As a side note, if you are interested in visiting in learning more about our unique approach to integrating public health into our fusion center concept, we would welcome a visit if you have time and would gladly share more. It may be an interesting case study for you.

FC02: Looks to collect information on drug overdoses, emergency room admissions related to opioids.

FC03: Medical/Health intelligence is obtained from open source/news outlets, county public health and Emergency Medical Services Agency and from local hospital emergency/disaster planners and security managers.

This intelligence/information is relayed to the fusion center personnel via several different ways. Routine or non-critical medical information can be shared at a twice weekly "stand-up" round table meeting of all fusion center units and personnel. Urgent information is shared by closed list, secured email to all fusion center personnel.

Information to be shared with fusion center personnel and medical community in the area of responsibility is relayed in a "Medical Situational Awareness Bulletin" which is distributed on an approved recipient email list.

The MLO will provide a report at the monthly Terrorism Liaison Officer's meeting hosted by the fusion center for law enforcement and fire TLO's.

FC04: Our fusion center has really not used any of his products. He is communicating directly with the health organizations and developing products for them. I think it is simply because we didn't have a need for any products up to this point.

Q14: What steps (if any) is the local or state fusion center taking to improve public health and fusion center integration?

FC01: We are continuing to work on fully integrating our public health partners. A significant part of this is facilitating access (clearances) for the right participants. Our approach truly is a team focus. In the past year, our unclassified product provides for greater information dissemination. This is helpful for those public health officials not cleared to participate on the team. The real benefit of the group is being able to inform and policy makers and provide subject matter expertise back into the IC.

FC02: N/A

FC03: The MLO regularly attends meetings and committees hosted by the county's Health Care Agency and the Operational Area's Emergency Management Office. Additional ad hoc meetings are attend when they integrate or affect the local acute care hospitals, clinics and medical transportation providers.

Upon hospital invitation, the MLO will attend hospital safety and security, disaster preparedness and emergency planning meetings.

FC04: None.

The following set of questions pertain to fusion centers that do not have public health representatives in their fusion centers.

Q3: Has the fusion center discussed the inclusion of public health?

FC05: Yes	FC12: Yes	FC19: Yes
FC06: Yes	FC13: Yes	FC20: No
FC07: Yes	FC14: Yes	FC21: Yes
FC08: Yes	FC15: Yes	FC22: Yes
FC09: Yes	FC16: Yes	FC23: Yes
FC10: Yes	FC17: No	
FC11: Yes	FC18: Yes	

No=2 (10.52%)
Yes = 17 (89.48%)

Q4: Does the fusion center value public health integration?

FC05: Yes	FC12: Yes	FC19: Yes
FC06: Yes	FC13: Yes	FC20: Yes
FC07: Yes	FC14: Yes	FC21: Yes
FC08: Yes	FC15: Yes	FC22: Yes
FC09: Yes	FC16: Yes	FC23: Yes
FC10: Yes	FC17: Yes	
FC11: Yes	FC18: No	

No = 1 (5.26%)
Yes = 18 (94.76%)

Q5: If so, has the fusion center adopted any of the public health baseline capabilities established by the United States Department of Justice?

FC05: No	FC12: No	FC19: No
FC06: Yes	FC13: No	FC20: No
FC07: No	FC14: No	FC21: No
FC08: No	FC15: Yes	FC22: No
FC09: No	FC16: Yes	FC23: No
FC10: No	FC17: Yes	
FC11: No	FC18: N/A	

Note: Since FC18 answered No on Q4, they did not receive this question.
No=14 (77.78%)
Yes=4 (21.22%)
N/A=1

Q6: Does the fusion center have a public health representative as part of the liaison program (TLO/ILO) but not assigned to the fusion center?

FC05: Yes	FC12: No	FC19: Yes
FC06: Yes	FC13: No	FC20: No
FC07: Yes	FC14: Yes	FC21: No
FC08: No	FC15: Yes	FC22: Yes
FC09: Yes	FC16: Yes	FC23: Yes
FC10: Yes	FC17: Yes	
FC11: Yes	FC18: Yes	

No = 5 (26.32%)
Yes = 14 (73.68%)

Q7: How often does the fusion center receive/share intelligence information with public health?

FC05: Participation with the State Department of Health [Fusion Center Liaison Officer (FLO)] is not regularized and usually occurs when a particular issue or situation arises and the FLO contacts the fusion center.[229]

The state fusion center does have a information sharing relationship with the primary state health officer who does provide valuable health and epidemiological information to our fusion center. However, this is not a formal relationship and information sharing/alerts is sporadic.

FC06: The State Fusion Center has an analyst who regularly collaborates with healthcare and public health sector partners, and evaluates how we can better share health-related information.

FC07: AS needed, if/when there is information specific to that AOR, or when collecting public health information/data for projects or publications.

FC08: N/A – did not receive the question.

FC09: The PH Rep receives all FOUO information. With the assistance of the hospital/PH rep, we developed a SAR card that is carried by hospital staff so as to assist with what should be reported and to whom report SAR's too.

FC10: Intermittently. Always during health issues such as the Zika Virus, Chikungunya, Ebola, etc. At one point CFIX had an analyst that supported the Emergency Services

[229] Fusion center liaison officer (FLO) is another common name for terrorism liaison officer (TLO) programs.

Sector (ESS) which included public health. She wrote numerous products on health issues.

FC11: Ad hoc basis based on events, requests for information, or current pandemic/public health developments.

FC12: N/A – did not receive the question.

FC13: /A – did not receive the question.

FC14: Weekly to provide updates as to how many people in our state are infected with certain diseases/illnesses. These updates are briefed to our Governor. Additionally, they provide intel/info as needed.

FC15: Daily

FC16: Virginia Fusion center receives or shares information with the Dept. of Health several times a week. Leadership from the Department of health attend a monthly intelligence briefing hosted by the fusion center.

FC17: Rarely

FC18: Weekly open source documents

FC19: The primary focus at this time is supporting a Drug Monitoring Initiative (DMI). This functions as a periodic or as needed collaboration based upon the goals and objectives of DMI.

FC20: N/A – did not receive the question.

FC21: N/A – did not receive the question.

FC22: Not scheduled but happens as deemed necessary by either party. This occurs three to four times per month on average and varies depending on circumstances. For example, more data exchange occurs during Zika season or during times of unusual health-related events such as the last Ebola outbreak. Information related to medical surveillance that may impact fusion center stakeholders is also shared on an as-needed basis.

FC23: Sporadically

Response Provided = 14 (73.68%)
No Response = 5 (25.32%)

Q8: Does this process work well?

Please note that Q8 is a continuation of Q6. If the respondent provided the answer of no on Q6, they did not receive this question.

FC05: No	FC12: N/A	FC19: Yes
FC06: Yes	FC13: N/A	FC20: N/A
FC07: Yes	FC14: Yes	FC21: N/A
FC08: N/A	FC15: Yes	FC22: Yes
FC09: Yes	FC16: Yes	FC23: Yes
FC10: Yes	FC17: Yes	
FC11: Yes	FC18: Yes	

No = 1 (7.14%)
Yes = 13 (92.86%)
N/A = 5

Q9: Are there any plans to revise or improve this process?
Please note that Q9 is a continuation of Q6.

FC05: Yes	FC12: N/A	FC19: Yes
FC06: No	FC13: N/A	FC20: N/A
FC07: No	FC14: No	FC21: N/A
FC08: N/A	FC15: Yes	FC22: No
FC09: No	FC16: No	FC23: Yes
FC10: Yes	FC17: No	
FC11: Yes	FC18: No	

No = 8 (57.14%)
Yes = 6 (42.86%)
N/A = 5

Q10: What steps (if any) is the fusion center taking to improve public health collaboration?

FC05: We are in a preliminary stage with developing a set of criteria for health-related information sharing.

FC06: The fusion center has been working with DHS to get SECRET-level security clearances for three individuals from the State Department of Health, so that they can work in the fusion center and attend our weekly classified briefings.

FC07: Would like to incorporate at least a part-time physical presence with public health in this center. Steps were taken several years ago, with a person from public health actually assigned to the center. For reasons never really explained, that person stopped coming and the partnership dissolved.

FC08: N/A – did not receive the question.

FC09: Regular communication. Enrolled in Infraguard.

FC10: We would like to have a health representative but resources are scarce.

FC11: Center is conducting additional outreach to county health officials. FC has already included a state health official on its senior advisory board.

FC12: N/A – did not receive the question.

FC13: N/A – did not receive the question.

FC14: No steps taken. Collaboration is sufficient at this time.

FC15: Attempt to have an analyst assigned to the center.

FC16: Respondent Responded with "N/A."

FC17: Simply maintaining communications.

FC18: Not talking

FC19: The Department of Public Health has been offered a larger role in the center. We would welcome a full or part time analyst. PH will be making a determination as to their level of commitment.

FC20: N/A – did not receive the question.

FC21: N/A – did not receive the question.

FC22: No formal steps at this time. This fusion center would like a health analyst to be assigned to it on a full-time basis; however, budgets and manpower challenges prevent this from occurring at this time.

FC23: The fusion center had a full-time epidemiologist who has since retired. It is hoped that some similar relationship could exist in the future.

Q11: Does the fusion center have public health representatives, but they chose not to participate?

FC05: No
FC06: No
FC07: Yes
FC08: No
FC09: No
FC10: No
FC11: No
FC12: No
FC13: No
FC14: No
FC15: No
FC16: No
FC17: No
FC18: No
FC19: No
FC20: No
FC21: No
FC22: No
FC23: No

No=18 (94.74%)
Yes = 1 (5.26%)

Q12: If the organization does not have a public health representative, does the fusion center still procure public health information?

FC05: No
FC06: Yes
FC07: Yes
FC08: Yes
FC09: Yes
FC10: Yes
FC11: Yes
FC12: Yes
FC13: Yes
FC14: No
FC15: Yes
FC16: Yes
FC17: Yes
FC18: Yes
FC19: Yes
FC20: Yes
FC21: Yes
FC22: Yes
FC23: Yes

No = 2
Yes = 17

Q13: What is the process to obtain public health information?

FC05: Our process to gather health related information is somewhat informal. We can reach out to known individuals at various state public health agencies and usually this communication will meet our information needs.

FC06: Our analyst carries out regular collaboration with the State Department of Health, local public health, FEMA regional healthcare coalition, and healthcare and public health sector personnel who have been selected and trained as Fusion Liaison Officers (FLOs). Our analyst also has access to various health-related communities of interest (COIs) on HSIN, receives emergency alerts from the SECURES system, as well as weekly or monthly newsletters from regional health sector partners, and periodic Emails from The Lancet and JAMA Network.

FC07: Director contact with one of several established POC's within the state public health agency.

FC08: One of our Analysts is a former Public Health analyst who still has contacts

FC09: Maintain contact list with subject matter experts to receive information. We have a Fire/EMS rep in the center that helps with PH issues.

FC10: Health and hospital ILOs share information with fusion center regularly as issues arise. All information is shared virtually. Public health partners also provide training at our ILO classes and to our regional partners as issues arise.

FC11: Center received public health information via an established liaison from state department of health.

FC12: state Vital Statistics

FC13: Although there is no State Public Health Representative assigned to the State Fusion Center, we collaborate with the Health Department on a regular basis to share information. One of the analysts in the State Fusion Center has developed a good relationship with Health Dept staff and attends meetings and shares information on a regular basis.

FC14: Usually by email to individuals. We also receive bulletins from the state's Dept of Public Health.

FC15: Usually through our connection to the department of health and senior services who we are working with.

FC16: Developed relationships with partners in the Dept. of health. Inclusion of DOH staff in development of health-related intel products and joint critical incident exercises.

FC17: liaison with known persons in the field.

FC18: Reach out to state level DOH rep.

FC19: Analyst to analyst coordination.

FC20: If needed we reach out to the USAI Representative & public health working group to obtain the needed info. Work with the Michigan HIDTA who has a Public Health Rep. on staff.

FC21: Through our Emergency Management Division.

FC22: An executive from the state department of health sits on the Advisory Board governing the fusion center. This cements the relationship between the two organizations and encourages the exchange of pertinent information. Currently, the

process to obtain health information is to rely on the Department of Health to share information with the Fusion Center that deems to be important.

FC23: Routine information sharing at the state level of government and through the state level of homeland security

Q14: Does this process work well?

FC05: Yes	FC12: No	FC19: Yes
FC06: Yes	FC13: Yes	FC20: Yes
FC07: Yes	FC14: Yes	FC21: Yes
FC08: Yes	FC15: Yes	FC22: Yes
FC09: Yes	FC16: Yes	FC23: Yes
FC10: Yes	FC17: Yes	
FC11: Yes	FC18: No	

No = 2 (10.53%)
Yes = 17 (89.47%)

Q15: Are there any plans to revise this process for improvement?

FC05: Yes	FC12: Yes	FC19: Yes
FC06: Yes	FC13: Yes	FC20: No
FC07: No	FC14: No	FC21: Yes
FC08: No	FC15: Yes	FC22: No
FC09: No	FC16: No	FC23: Yes
FC10: No	FC17: No	
FC11: Yes	FC18: No	

No=10 (52.63%)
Yes=9 (47.37%)

One fusion center that said the process didn't work well in Q14, indicated in Q15 that there are no plans to improvement the process.

Q16: What has prevented the fusion center from integrating with public health?

FC05: Politics is often a challenge. Another challenge is sharing sensitive public health information that the public health agency owner may not want to reveal dues to concerns about public release of the information or due to internal policies that prohibit information sharing with another agency.

FC06: The fusion center has reached out to various healthcare and public health sector partners on numerous occasions, offering them access and a workspace within the fusion center. To date, there has been reluctance on the part of our health sector partners to

"physically" place any of their personnel in the fusion center—even on a temporary basis. The question really should be, "What has prevented the healthcare and public health sector from integrating with state and local fusion centers?"

FC07: We made arrangements to bring public health in to this center. space was provided, clearances were processed, and the public health agency/person dropped off the radar.

FC08: Lack of space.

FC09: Workload.

FC10: Public health has not provided a representative to be co-located at the fusion center.

FC11: Lack of dedicated billet to staff a public health liaison. Also, general misunderstanding/misapplication of HIPAA and patient confidentiality laws have prevented health departments and health service organizations from sharing relevant health information with the center.

FC12: Lack of resources: Manpower/time/ease of contact

FC13: Budget constraints have not allowed the Health Department to embed personnel at the State Fusion Center. One of the analysts in the Fusion Center attends meetings and collaborates with Health staff on a regular basis.

FC14: Budget/staffing issues. We only have five analysts in our fusion center for the entire state. Our critical infrastructure analyst is responsible for working with public health. The healthcare & public health sector is one of 16 other critical infrastructure sectors that she is responsible for having visibility on. She's the only infrastructure analyst in our office, so it is hard to dedicate the time needed to effectively integrate with public health.

FC15: I do not know for sure but I would say will to provide personnel on health's part.

FC16: Respondent responded with "N/A."

FC17: Commitment of personnel by the healthcare sector

FC18: Lack of knowledge of potential use as well as ongoing problem of fusion center still considered an all crimes center

FC19: Public health's willingness to make the assignment to the center.

FC20: Lack of federal funds.

FC21: At this time our fusion center focuses on criminal investigations and require commissioned personnel who is capable of filing criminal charges. The public sector does not meet these criteria. However, we are still willing to work with them to solve issues.

FC22: Budget limitations and lack of manpower to create a dedicated health analyst to be embedded with the fusion center.

FC23: It does integrate, there are always ways to improve and the fusion center encourages new ways of thinking to better meet the information sharing needs of the future.

Q17: What does the organization do with information regarding a potential public health threat?

FC05: The fusion center will coordinate with the respective public health agency (usually the state), and have that agency provide to us a product that meets their information release framework and policy. This way the fusion center can act as an information-sharing hub and disseminate the information on behalf of the public health agency.

FC06: The fusion center regularly shares the following types of information and finished intelligence with its healthcare and public health sector partners to include:

- Producing/sharing intelligence or information regarding suspicious incidents at hospitals and other healthcare facilities
- Producing/sharing intelligence or information regarding terrorism and cyber threats to the healthcare and public health sector
- Posting alerts on HSIN regarding food recalls due to contamination or food-borne illnesses
- Provide state and local officials with health-related information prior to traveling overseas on official business, as part of a broader and more comprehensive travel security briefing
- Recently worked with CDC and state and local healthcare and public health sector partners to produce a reference graphic on “health concerns and tips for staying healthy during international travel.”

FC07: Depends on the information. We have assisted in locating a contagious subject that walked away from treatment against medical advice. We have also provided published information on public health threats directly to the public health agency, requesting that they push it to their relevant partners.

FC08: Distribute as necessary

FC09: We help disseminate information to local government public health and work with state fusion center to send out information for state public health.

FC10: Share with partners as needed. Partners include law enforcement, first responders, emergency services sector, corrections, transportation, private sector and CIKR in Central Florida.

FC11: Ensure situational awareness among state leadership and - if warranted - dissemination awareness and officer safety, mitigation, and response information to first responders in state.

FC12: Produces strategic product for statewide/nationwide dissemination to the IC.

FC13: Staff at the Health Dept and at the Fusion center share information on a regular basis so that if something arises they know who to call, questions to ask, etc.

FC14: Depends on the severity. Something smaller in our state, such as Zika that only results in a handful of cases in the state, we would probably push out an awareness message on our social media as well as share that information with our partners on our secure information sharing portal. If it was a massive outbreak of an illness, the timing at which we would distribute this information would certainly be more immediate.

FC15: Usually just situational awareness.

FC16: Creation of FOUO products which can be shared with private and government officials.

FC17: provides briefings to stakeholders

FC18: Reach out to doh

FC19: See DMI explanation.

FC20: Disseminate to Fusion stakeholders via email

FC21: It depends on the type of information and who the information is received from. It can be disseminated to commission personnel as needed for officer safety awareness.

FC22: Share with FOUO partners. These include health, fire, EMS, law enforcement and others involved in public safety who have a relationship with the VFC.

FC23: It depends on the information and the audience but it will likely be incorporated into a bulletin or joint intelligence bulletin (JIB) or some other form of dissemination such as regional homeland security committees, boards, training, exercises etc.

Q18: With whom is this information shared (Specific agencies or individuals)?

FC05: The fusion center will share information at the appropriate determined level. This could be wide dissemination to FOUO partners (usually the case) or strictly limited, such as producing information for an IIR (DHS sensitive shared product).

FC06: The fusion center shares information and finished intelligence products with all of our healthcare and public health sector partners throughout the state.

FC07: State Department of Health Director, Deputy Director and Associate Branch Chief of Preparedness & Response, Trauma, Preparedness, & EMS Branch

FC08: Local agencies

FC09: Agencies

FC10: We support 9 counties and have nearly 500 Intelligence Liaison Officers (ILOs - multi-discipline, multi-agency) who are encouraged to share it with their partners with a need and right to know.

FC11: S&L police agencies, fire/EMS, federal partners, state leadership.

FC12: statewide law enforcement and administration

FC13: Stakeholders with the need to know and who are potentially impacted.

FC14: Federal, state and local partners, which also include law enforcement, fire, emergency management and private sector.

FC15: Some shared with Intelligence Liaison Officers

FC16: Local, state fire agencies, hospitals, EMS, local government officials, local health care providers.

FC17: FD, EMS, Health hospital corp

FC18: State doh rep for hospitals

FC19: The products developed are shared at the For Official Use Only level and shared in a cross-discipline manner.

FC20: As needed

FC21: Department of Health and Human Services

FC22: Federal, state and local law enforcement partners in the state.
Fire Service in the state
EMS
Public Health
Federal, state and local government officials within the state
Other fusion centers within the National Network of Fusion Centers

FC23: Both agencies and individuals based on criteria above. LE, Fire EM, Hospitals, and private sector

Q19: How is this information shared?

FC05: Normally via email.

FC06: Typically, the fusion center disseminates information, alerts, and finished intelligence products via HSIN and the Northwest Warning, Alert, and Response Network (NWWARN).

FC07: Primarily electronic/digital

FC08: email

FC09: email

FC10: Virtually through electronic alerts, and bulletins. Also shared through in person briefings as needed.

FC11: Via fusion center alerts, weekly products, or direct outreach.

FC12: Bulletin/white paper

FC13: email

FC14: If it's open source information, via email. Any information that is more sensitive in nature would be uploaded in our secure information sharing portal, the Homeland Security Information Network (HSIN), owned by DHS. All of our partners have the ability to have accounts on this site.

FC15: Post on website and notification via email.

FC16: Formally through creation of intelligence products and informally through existing relationships.

FC17: liaison exchange - briefings

FC18: Email or conference call

FC19: As drug abuse threats are identified or emerging trends/patterns are recognized.

FC20: Email or via telephone.

FC21: Via email and phone call.

FC22: Email. HSIN (Homeland Security Information Network)

FC23: As noted above.

Q20: Is there a time delay in sharing this information?

FC05: Not usually. But we do not receive many public health related information products to disseminate.

FC06: There can be a delay, as our Fusion Center is not operational 24/7. While alerts can be disseminated on the weekend and after hours, information sharing may be delayed.

FC07: Occasionally, if information is received during off hours for this center.

FC08: no

FC09: Sometimes.

FC10: We are not a 24/7 center so time delays would equate to evening and weekend hours.

FC11: Only in non-urgent cases.

FC12: yes

FC13: Weekends/nights info may be slower to get out due to the fact that we are not a 24/7 Fusion Center but it will get out if necessary.

FC14: Depends on the severity. Ranges from as soon as we get the information to every two weeks when we send out links to documents we've uploaded on HSIN. All documents that we've uploaded on HSIN can be accessed at any time by our partners, but we email links to those products out biweekly just as a convenience.

FC15: Not Typically

FC16: no

FC17: Could be hours to days

FC18: Yes.

FC19: Data collection can be difficult due to the lack of data reporting standards across the state for drug abuse/overdose details needed.

FC20: No.

FC21: Yes

FC22: No

FC23: There are always time delays due to vetting information, determining appropriate audience, determining mode of dissemination etc. All efforts are made to disseminate as quickly as possible given the challenges

Q21: Are special permissions required to release this information to public health officials?

FC05: No
FC06: No
FC07: No
FC08: No
FC09: No
FC10: Yes
FC11: No
FC12: No
FC13: No
FC14: No
FC15: No
FC16: Yes
FC17: Yes
FC18: Yes
FC19: Yes
FC20: Yes
FC21: Yes
FC22: Yes
FC23: No

No = 11 (57.89%)
Yes = 8 (42.11%)

Q22: Is the information required to be declassified?

FC05: Yes
FC06: No
FC07: No
FC08: No
FC09: Yes
FC10: No
FC11: No
FC12: No
FC13: Yes
FC14: No
FC15: No
FC16: No
FC17: Yes
FC18: Yes
FC19: No
FC20: No
FC21: Yes
FC22: Yes
FC23: No

No=12 (63.16%)
Yes=7 (36.84%)

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APPENDIX E. JTTF SURVEY RESULTS

Q1: Does the JTTF currently have a dedicated public health representative (e.g., someone assigned to the fusion center on a part-time or full time basis)?

JTTF1: No
JTTF2: Yes
JTTF3: No

The following set of questions apply to those JTTFs that have public health representatives. Questions from those that do not have public health representatives start on page 114.

Q2: How many public health representatives are assigned to the JTTF?

JTTF2: 1

Q3: What kind of public health practitioner is the public health representative?

JTTF2: Public Health Emergency Planner

Q4: Is the public health representative full-time or part-time?

JTTF2: Part-time

Q5: Does the public health representative have a security clearance?

JTTF2: Yes

Q6: If Yes, what type of security clearance do they hold?

JTTF2: Secret

Q7: If yes, which organization procured the clearance?

JTTF2: JTTF

Q8: Did the public health representative receive any training to work with your JTTF?

JTTF2: No

Q9: Has the JTTF experienced any benefits from its public health integration?

JTTF2: Yes

Q10: Has the JTTF ever had cause to call on the public health expertise provided by its public health representative?

JTTF: Yes

Q11: Describe the process for integrating the public health representative.

JTTF2: The WMDC in particular, keeps an open line of communication and contact is made on a regular basis. Contact is often the result of the PH rep and the WMDC being on the same task forces, working groups, committees etc. The PH rep does not sit in the JTTF. If JTTF get intel which is related to PH matters, the WMDC will reach out directly to the PH rep to pass the intel and/or consult on the matter.

Q12: Describe the process for integrating public health information provided by its public health representative.

JTTF2: PH related info is generally passed to the JTTF through the WMDC, who then decides the appropriate action and whether the information is appropriate for documentation in FBI databases. The JTTF, through the WMDC is also included on data distributions generated by PH (such as surveillance data) for situational awareness.

Q13: What steps (if any) is your JTTF taking to improve public health and fusion center integration?

JTTF2: Constant and ongoing liaison, joint training.

Q14: What does the JTTF do with information regarding a potential public health threat?

JTTF2: JTTF, usually the WMDC, evaluate the information to decide appropriate actions (documentation, distribution, further analysis and/or investigation).

Q15: With whom is this information shared?

JTTF2: Dependent on the nature of the information but it has the potential to be shared with numerous local PH related entities, other JTTF partners, FBIHQ elements and other state and federal partners deemed appropriate.

Q16: How does the JTTF share this information

JTTF2: Depending on the format of the intel, it can be shared electronically, in person or via telcal.

Q17: Is there a time delay in sharing this information?

JTTF2: That really depends on the nature of the info, but there certainly can be.

Q18: Does the JTTF require special permission to release this information to public health officials?

JTTF2: No

Q19: Is the information required to be declassified?

JTTF2: Yes

The following set of questions apply to those JTTFs that do not have public health representatives.

Q2: Has the JTTF ever discussed the inclusion of public health?

JTTF1: Yes
JTTF3: No

Q3: Does the JTTF value public health integration?
JTTF1: Yes
JTTF3: Yes

Q4: Has the JTTF invited public health representatives, but they chose not to participate?

JTTF1: No
JTTF3: No

Q5: If the organization does not have a public health representative, does your organization still procure public health information?

JTTF1: Yes
JTTF3: Yes

Q6: If Yes, what is the process to obtain public health information?

JTTF1: Our agency would use the FBI WMD Coordinator as a liaison between the JTTF and Public Health.
JTTF3: Typically, through liaison efforts and activities.

Q7: Does this process work well?

JTTF1: Yes
JTTF3: Yes

Q8: Are there any plans to improve this process?

JTTF1: Yes
JTTF3: No

Q9: What steps is your organization taking to improve public health collaboration?

JTTF1: We have discussed adding a public health person to the JTTF.

JTTF3: We have had certain member of PH obtain clearances.

Q10: Is there anything else that has prevented the JTTF from integrating with public health?

JTTF1: Not that I am aware of.

JTTF3: This is integration in the form of meetings, info sharing, response activities. Most JTTF do not have non-sworn law enforcement personnel on the JTTF an official task force member.

Q11: What does the JTTF do with information regarding a potential public health threat?

JTTF1: Assuming the information came from public health, one of the first things we do is try to determine if this is a naturally occurring event or might it have a connection to terrorism or criminal activity.

JTTF3: It is entered into Guardian as an assessment to determine a nexus to terrorism.

Q12: With whom is this information shared?

JTTF1: Depends. Maybe the WMD Directorate at FBIHQ. Maybe other JTTF's. If it's something that merits the JTTF's attention, we might reach out to local law enforcement at the point of origin.

JTTF3: JTTF member from other organizations.

Q13: How does the JTTF share this information?

JTTF1: Depends. Email and phone are probably the most common.

JTTF3: Routing briefs and joint cases.

Q14: Is there a time delay in sharing this information?

JTTF1: Yes. Depending on the situation, it could be delayed minutes to weeks.

JTTF3: No

Q15: Does the JTTF require special permission to release this information to public health officials?

JTTF1: No
JTTF3: No

Q16: Is the information required to be declassified?

JTTF1: Yes
JTTF3: Yes

APPENDIX F. PUBLIC HEALTH SURVEY RESULTS

Q1: At what level of government is your organization?

PH01: Local	PH07: Local	PH13: State
PH02: Local	PH08: Local	PH14: State
PH03: Local	PH09: Local	PH15: State
PH04: Local	PH10: State	PH16: State
PH05: Local	PH11: State	
PH06: Local	PH12: State	

Local = 9 (56.25%)
State = 7 (43.75%)

Q2: Does your department have representatives in fusion centers?

PH01: No	PH07: No	PH13: Yes
PH02: No	PH08: No	PH14: Yes
PH03: No	PH09: No	PH15: Yes
PH04: No	PH10: No	PH16: No
PH05: No	PH11: Yes	
PH06: No	PH12: No	

No = 12 (75%)
Yes = 4 (25%)

Q3: Does your department have representatives in Joint Terrorism Task Forces (JTTFs)?

PH01: No	PH07: No	PH13: No
PH02: No	PH08: No	PH14: No
PH03: No	PH09: No	PH15: No
PH04: No	PH10: No	PH16: Yes
PH05: No	PH11: No	
PH06: No	PH12: Yes	

No = 14 (87.5%)
Yes = 2 (12.5%) ***Both are state public health agencies

The following questions and response are from local public health agencies.

Q4: Have you and your team discussed collaboration with fusion centers?

PH01: Yes	PH04: No	PH07: Yes
PH02: Yes	PH05: No	PH08: Yes
PH03: No	PH06: Yes	PH09: Yes

No = 3 (33.33%)
Yes = 6 (67.67%)

Q5: Is there an interest to work with Fusion Centers?

PH01: Yes	PH04: Yes	PH07: Yes
PH02: Yes	PH05: Yes	PH08: Yes
PH03: Yes	PH06: Yes	PH09: Yes

No = 0 (0%)
Yes = 9 (100%)

Q6: Has public health contacted fusion centers, but the fusion center decided to not include public health?

PH01: No	PH04: No	PH07: No
PH02: No	PH05: No	PH08: No
PH03: Yes	PH06: No	PH09: No

No = 8 (11.11%)
Yes = 1 (88.89%)

Q7: What steps (if any) is your department taking to improve public health and fusion center integration?

PH01: I have been in email contact with a local fusion center representative, but have not followed through and set up a meeting yet. The goal is to get some field staff trained in suspicious activity reporting and have them as additional sources of information out in the community.

PH02: We do not have a physical PH person in the Fusion Center but staff have been trained as FLO. We invite them to ESF 8 briefings, we exchange emails, we coordinate during EOC activations when they have a liaison at city EOC.

PH03: We have not discussed the idea. It is my understanding that the state department of public health collaborated with fusion centers; however, the information does not generally get passed to the local level.

PH04: None

PH05: The state Department of Public Health is collaborating with the Fusion Center, but that has not occurred locally.

PH06: The fusion center is open to having Public Health within the FC, but full time. This is difficult position, as you know PH preparedness has been understaffed and we can not give up a staff full time. The discussion is now surrounding can three or four staff split the time...the con; this will not generate the relationship needed to maintain good conversations.

PH07: Attend joint conferences, attend meetings that have representation from other agencies intimately involved with fusion center.

PH08: The Fusion Center frequently works with the regional preparedness structure and a representative will report out.

PH09: Our director is in the process of completing a liaison officer application for the Fusion Center

Q8: Does the fusion center ever contact you for information regarding public health?

PH01: No
PH02: Yes
PH03: No
PH04: No
PH05: No
PH06: Yes
PH07: No
PH08: Yes
PH09: No

No = 6 (66.67%)
Yes = 3 (33.33%)

Q9a. If so, is it regarding public health threats?

PH02: Yes
PH06: Yes
PH08: Yes

No = 0 (0%)
Yes = 3 (100%)

Q9b. If so, is it regarding bioterrorism?

PH02: Yes
PH06: No
PH08: No

No = 2 (66.67%)
Yes = 1 (33.33%)

Q9c. If so, is it regarding response planning?

PH02: Yes
PH06: No
PH08: Yes

No = 1 (33.33%)
Yes = 2 (66.67%)

Q10. If the response was yes to any of the questions above, what specific information do the Fusion Centers typically request?

PH02: Cyber and healthcare, communicable disease issues, including travel; SA regarding events with PH implications

PH06: Most request are disease reports and education on highly infectious diseases. Looking for the facts and how diseases can be spread.

PH08: The Terrorism Early Warning (TEW) system communicates between the Fusion Center and the regional public health preparedness committee. Information regarding large events, soft targets, threats from various groups, and other information is shared and discussed.

Q11. Have you and your team discussed collaboration with JTTFs?

PH01: No	PH04: No	PH07: Yes
PH02: Yes	PH05: No	PH08: Yes
PH03: No	PH06: No	PH09: No

No = 6 (66.67%)
Yes = 3 (33.33%)

Q12. Is there an interest to work with JTTFs?

PH01: No	PH04: Yes	PH07: Yes
PH02: Yes	PH05: Yes	PH08: Yes
PH03: No	PH06: No	PH09: Yes

No = 3 (33.33%)
Yes = 6 (66.67%)

Q13. Has public health contacted JTTF, but the JTTF decided to not include public health?

PH01: No	PH04: No	PH07: No
PH02: No	PH05: No	PH08: No
PH03: No	PH06: No	PH09: No

No = 9 (100%)
Yes = 0 (0%)

Q14. What steps (if any) is your department taking to improve public health and JTTF integration?

PH01: None have been explored at this time.

PH02: We are on listservs and trained as FLO. I think it is incumbent upon fusion centers to do a better job sharing info that is relevant to PH; we have had specific meetings on this topic.

PH03: Unknown

PH04: None

PH05: I think that is more likely to be done by the Department of Public Health, but we would be very interested locally.

PH06: N/A

PH07: same as above. We make an effort to stay informed through regular contact with members of the JTTF.

PH08: Not so far, but I would be interested to see other possibilities.

PH09: No current steps to improve Task Force integration.

Q15. Does the JTTF ever contact you for information regarding public health?

PH01: No	PH04: No	PH07: Yes
PH02: Yes	PH05: No	PH08: No
PH03: No	PH06: No	PH09: No

No = 7 (77.78%)
Yes = 2 (22.22%)

Q16a. If so, regarding public health threats?

PH02: Yes
PH07: Yes

No = 0 (0%)
Yes = 2 (100%)

Q16b. If so, regarding bioterrorism?

PH02: Yes
PH07: Yes

No = 0 (0%)
Yes = 2 (100%)

Q16c. If so, regarding response planning?

PH02: Yes
PH07: Yes

No = 0 (0%)
Yes = 2 (100%)

Q17. If the response was yes to any of the questions above, what specific information do JTTFs typically request?

PH02: Sit Awareness on PH issues for local incidents; info on cyber and healthcare; request to review info.

PH07: The requests are not typical. They are specific to an event or situation. OR they are a discussion of protocols.

Q18. How does public health receive threat information?

PH01: Primarily through ESSENCE surveillance data and programs such as BioWatch.

PH02: via email; mystateusa.com; HSIN

PH03: At the local level, we rely on the state department of public health to disseminate this information.

PH04: We receive none excepting communicable disease threat info.

PH05: At the Department of Public Health, information sharing between agencies is getting better and better. It does not work as well from the state to the local level.

PH06: Most information is shared through the Terrorism Liaison Officers (TLOs). Most intel is specific to special or large events. If there are any persons being monitored for disease that are lost we utilize them to track down individuals.

PH07: Through EMA or Biowatch.

PH08: The TEW representatives will inform at regional meetings and send out an email blast when necessary to agency representatives.

PH09: Our regional coordination entity provides intelligence on threats identified for the area.

Q19. Does the department feel that the process to obtain intelligence about credible threats work well?

PH01: Yes	PH04: No	PH07: Yes
PH02: No	PH05: No	PH08: Yes
PH03: Yes	PH06: Yes	PH09: No

No = 4 (44.44%)
Yes = 5 (55.56%)

Q20. Has this process been tested by the department in exercise situations?

PH01: Yes
PH02: No
PH03: No
PH04: No
PH05: No
PH06: Yes
PH07: No
PH08: No
PH09: No

No = 7 (77.78%)
Yes = 2 (22.22%)

Q21. What steps (if any) is the department taking to improve how it receives threat information?

PH01: There are some concerns that ESSENCE does not function at its full capability due to outdated software. However, we are attempting to increase our surveillance capabilities with EMS partners, and potentially community partners such as schools.

PH02: Keeping lines of communication with fusion center open; adding people to HSIN or sending to FLO training as appropriate

PH03: N/A

PH04: None

PH05: I am relatively new in my position (less than 6 months) and was previously at the Department of Public Health. Am trying to leverage relationships built previously to establish information sharing pathways.

PH06: Maintaining open dialogue and sitting in local IMTs for events. It is all about relationships and keeping staff long-term helps. We have gone from a 58% turn over to 10%, this helps keep same people in positions long enough to form a solid relationship.

PH07: Keeping this as part of exercises

PH08: Not so far, but I would be interested to see other possibilities.

PH09: No current steps are being taken

The following responses are from state public health agencies that have representatives in fusion centers.

Q4: How Many public health representatives work in the fusion center?

PH11: 4
PH13: 1
PH14: 1
PH15: 1

Q5: ·Do these individuals work full time in their role with the fusion center?

PH11: part-time
PH13: part-time
PH14: part-time
PH15: part-time

Q6. What roles do these representatives hold within the public health agency?

PH11: 2 from emergency preparedness planning & operations, 2 from epidemiology
PH13: Information Management
PH14: Public Health Emergency Planner
PH15: Public Health Emergency Planner

Q7: Do any of these public health representatives hold a security clearance?

PH11: Yes
PH13: No
PH14: No
PH15: No

No = 3 (75%)
Yes = 1 (25%)

Q8: If yes, what type of security clearance do they hold?

PH11: Secret

Q9: If yes, which organization procured the clearance?

PH11: Fusion Center

Q10: Have any of the public health representatives received any training to work with a fusion center?

PH11: No
PH13: No
PH14: Yes
PH15: No

No = 3 (75%)
Yes = 1 (25%)

Q11. If so, what type of training?

PH14: Workshop and informational session

Q12: Has public health experienced any benefits from its fusion center integration?

PH11: Yes
PH13: Yes
PH14: No
PH15: Yes

No = 1 (25%)
Yes = 3 (75%)

Q13: Has public health been asked by the fusion center to provide public health expertise?

PH11: Yes
PH13: Yes
PH14: No
PH15: Yes

No = 1 (25%)
Yes = 3 (75%)

Q14: Has the public health representative(s) expressed any challenges integrating the fusion center?

PH11: Yes
PH13: No
PH14: Yes
PH15: No

No = 2 (50%)

Yes = 2 (50%)

Q15: What steps (if any) is your department taking to improve public health and fusion center integration?

PH11: None at the moment; the fusion center has primarily just created a linkage between the intelligence community and the public health agency ("knowing who to call when you have a question" kind of thing)

PH12: We have a representative that works with the fusion center on a limited basis and to my knowledge, no steps are being taken to improve integration at this time.

PH13: involving department in monthly meetings, conference calls, trainings and submitting critical information on a regular schedule for transmission.

PH15: Individual is obtaining a classified clearance; fusion center will train as an analyst.

The following responses are from state health departments that did not have representation in fusion centers.

Q26: Have you and your team discussed collaboration with fusion centers?

PH10: Yes
PH12: Yes
PH16: Yes

No = 0 (0%)
Yes = 3 (100%)

Q27: Is there an interest to work with fusion centers?
PH10: Yes
PH12: Yes
PH16: Yes

No = 0 (0%)
Yes = 3 (100%)

Q28: Has public health contacted fusion centers, but the fusion center decided to not include public health?

PH10: No
PH12: No
PH16: Yes

No = 2 (66.67%)
Yes = 1 (33.33%)

Q29: What steps (if any) is your department taking to improve public health and fusion center integration?

PH10: none at this time
PH12: pre-existing close collaborations and working relationships.
PH16: Working on building relationships

Q30: Does the fusion center ever contact you for information regarding public health?

PH10: No
PH12: Yes
PH16: No
No = 2 (66.67%)
Yes = 1 (33.33%)

Q31a: If so, regarding public health threats?

PH12: Yes

Q31b: If so, regarding bioterrorism?

PH12: Yes

Q31c: If so, regarding response planning?

PH12: Yes

Q32: **If the response was yes to any of the questions above, what specific information do the Fusion Centers typically request?**

PH12: Clinical threat assessment and overview of pathophysiology; situational awareness and information exchange for determining response activities

The following responses are from state public health agencies that have representatives on the JTTF.

Q16: Do these individuals work full-time or part-time in their role with the JTTF?

PH12: Attend Meeting of the executive and plenary work group

PH16: Attends Task force meetings

Q17: What roles do these representatives hold within the public health agency?

PH12: Departmental Director

PH16: Public Health Preparedness Leadership

Q18: Do any of these public health representatives hold a security clearance?

PH12: Yes
PH16: No

No = 1 (50%)
Yes= 1 (50%)

Q19: If yes, what type of security clearance do they hold?

PH12: Secret

Q20: If yes, which organization procured the clearance?

PH12: DHS

Q21: Have any of the public health representatives received any training to work with a JTTF?

PH12: No
PH16: No

No=2 (100%)
Yes = 0 (0%)

Q22: Has public health experienced any benefits from its JTTF integration?

PH12: Yes
PH16: No

No = 1 (50%)
Yes= 1 (50%)

Q23: Has public health been asked by the JTTF to provide public health expertise?

PH12: Yes
PH16: Yes

No = 0 (0%)
Yes = 2 (100%)

Q24: Has the public health representative(s) expressed any challenges integrating JTTF?

PH12: No
PH16: No

No=2 (100%)
Yes = 0 (0%)

Q25: What steps (if any) is the department taking to improve public health and JTTF integration?

PH12: Continued collaboration and open communication between the stakeholders and partners.

PH16: N/A

The following responses are from state health agencies that do not have any representation on JTTFs.

Q33: Have you and your team discussed collaboration with JTTFs?

PH10: No
PH11: No
PH13: Yes
PH14: No
PH15: Yes

No = 3 (60%)
Yes = 2 (20%)

Q34: Is there an interest to work with JTTFs?

PH10: No
PH11: Yes
PH13: Yes
PH14: Yes
PH15: Yes

No = 1 (20%)
Yes = 4 (80%)

Q35: Has public health contacted JTTF, but the JTTF decided to not include public health?

PH10: No
PH11: No
PH13: No
PH14: Yes
PH15: No

No = 4 (80%)
Yes = 1 (20%)

Q36: What steps (if any) is your department taking to improve public health and JTTF integration?

PH10: None

PH11: Have limited experience with JTTFs, and don't know who or how to get engaged with them.

PH13: I don't know

PH14: It has been a long tireless effort including the JTTF in all of our planning efforts, preparedness projects, programs and training opportunities and we have not been invited to any meetings, events, nor has discussions included any input from DPH.

PH15: Our PH planner works with the JTTF, as far as info flow, but is not able to be on the JTTF, due to not being a post-certified LE official.

Q37: Does the JTTF ever contact you for information regarding public health?

PH10: No
PH11: No
PH13: No
PH14: No
PH15: Yes

No = 4 (80%)
Yes = 1 (20%)

Q38a: If so, regarding public health threats?
PH15: Yes

Q38b: If so, regarding bioterrorism?
PH15: Yes

Q38c: If so, regarding response planning?
PH15: Yes

Q39: If the response was yes to any of the questions above, what specific information do JTTFs typically request?

PH15: the FBI LNO works closely with the PH planner in areas of suspicious powders/packages, Biowatch, other info exchange that is unclassified.

The following responses are from all state health departments that responded to the survey.

Q40: How does public health receive threat information?

PH10: Mostly from state emergency management. Also from federal [Department of Health and Human Services].

PH11: Fusion center (if they feel public health has a need to know); state emergency management agency; Federal partners

PH12: through multiple channels of communication from ESF 8 stakeholders and partners as well as others within the federal, regional, intra-state and local levels.

PH13: Fusion Center, FBI, and State Emergency Management

PH14: CDC, HHAN Alert, ASPR, MRC. Regional Coordinating Coalitions, DHS, MEMA, FEMA, EAS

PH15: thru Fusion Ctr, FBI LNO at JTTF, from state EMA

PH16: Federal counterparts, county emergency managers

Q41: Does the department feel that the process to obtain intelligence about credible threats work well?

PH10: Yes	PH13: Yes	PH16: No
PH11: No	PH14: No	
PH12: Yes	PH15: No	

No = 4 (57.14%)
Yes = 3 (42.86%

Q42: Has this process been tested by the department in exercise situations?

PH10: No
PH11: No
PH12: Yes
PH13: No
PH14: Yes
PH15: No
PH16: No

No = 5 (71.43%)
Yes = 2 (28.6%)

Q43: What steps (if any) is the department taking to improve how it receives threat information?

PH10: none at this time

PH11: None at this time, however, there is a concern regarding “need to know” threshold - who determines at what point public health needs to be engaged/informed?

PH12: Continuous evaluation of both exercise and real world events through after action reports and corrective actions. In addition, active networking with colleagues and partners during normal times.

PH13: None that I know of.

PH14: improving existing technology, IT and other means to receive information quickly.

PH15: attempting to identify other federal partners or state agencies we can work through

PH16: N/A

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